MILITARY REVIEW

COMMAND AND GENERAL STAFF COLLEGE
FORT LEAVENWORTH, KANSAS

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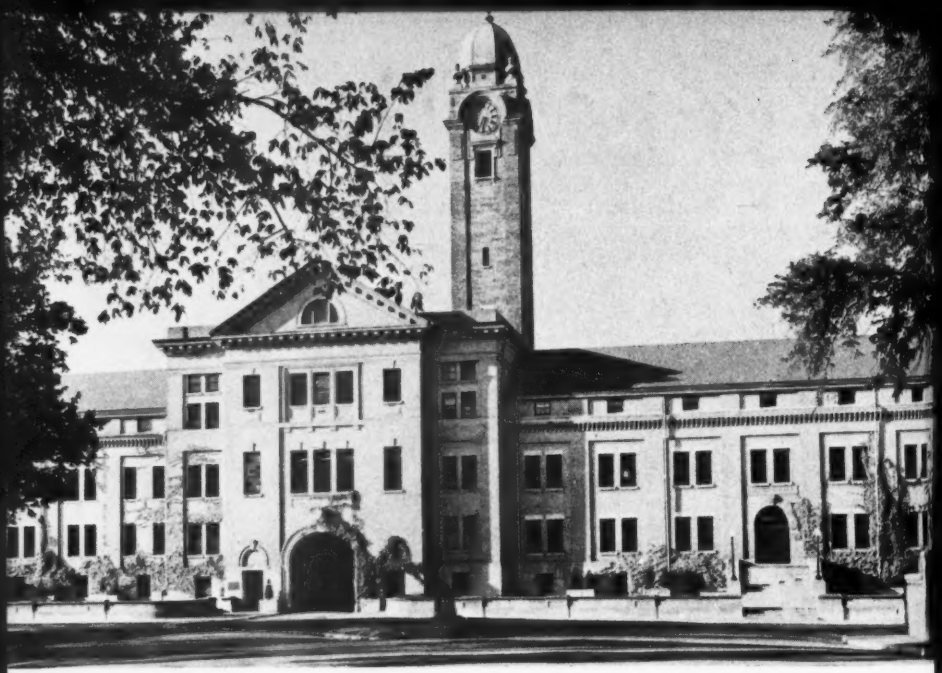

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MILITARY REVIEW

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FORT LEAVENWORTH IS BORN

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE frustration of a veteran colonel's life ambition to found a graduate school for Army officers and a young nation's determination to have done with appeasement in the face of aggression combined fortuitously to found Fort Leavenworth in 1827. When, during the previous winter, the bearded 47-year-old commander of the 3d Infantry at Jefferson Barracks, Missouri, received War Department orders to "establish a fort on the Missouri River for the protection of caravans on the Santa Fe Trail," his disappointment was intense.

Few leaders of the tiny frontier Army of that day were better qualified for a wilderness mission than Colonel Henry Leavenworth. As a major, he had marched from Detroit to Minnesota and built Fort Snelling on the upper Mississippi. As a lieutenant colonel, he commanded Fort Atkinson (now Council Bluffs, Iowa) and won a campaign against the Arikaree warriors besieging William Ashley's band of trappers along the upper Missouri near its junction with the North and South Dakota boundaries.

Ashley's plea for help reached Fort Atkinson, 450 miles downstream, on 18 June 1823. Four days later, Leavenworth marched his "entire command, six companies of the 6th Infantry, 250 strong with two 6-pounder cannons" to the rescue. Joined en route by Joshua Pilcher, another fur trader, with 60 men and a "number of Sioux auxiliaries," always ready to plunder their traditional foes, the Arikarees, the expedition reached Ashley's fortified camp on 1 August to find 80 survivors of the original 100.

Ten days of skirmishing culminated in Leavenworth's successful attack on the Arikaree villages—after his Sioux "auxiliaries" had deserted. The Arikarees sued for peace. Leavenworth signed a treaty under which the trappers' property was restored.

The job completed, Leavenworth began his return march on 15 August. The following night, the Arikaree village was "mysteriously burned," a treaty breach charged to Pilcher. No clear explanation was ever issued from the remote wilderness. War Department approval of the campaign was expressed by promoting its commander to colonel and assigning him to the 3d Infantry's distant outpost at Green Bay, Wisconsin, and then moving him and part of his regiment to Jefferson Barracks, Missouri, in 1826.

There his long-standing request was granted. He would establish, during the summer of 1827, a "School of Practice for Infantry" to further the education of officers who, except for the small proportion graduated from West Point, had little

Although Colonel Leavenworth's dream of founding a graduate school for Army officers was not realized during his lifetime, a world famous institution was later originated on the wilderness post he established

or no schooling beyond such "on-the-job training" as their duties provided. The bulk of Leavenworth's baggage allowance upon arrival at Jefferson Barracks was devoted to textbooks and school supplies purchased at his own expense. He plunged enthusiastically into preparations for the school. However, national affairs intruded not only to delay that school's beginning for 44 years, yet oddly enough, to implant the Army's guidons at the very spot which would be its permanent home.

$20,000 Buys Trouble

The powerful Senator Benton (Missouri) had demanded military protection for the Santa Fe Trail over which his constituents drew an appreciable income.

Trade with the Spanish settlements near Santa Fe had long beckoned adventurers over a route barely traced across mountains, plains, and desert. Yet a century old "iron curtain," erected by the Spanish Crown, restricted its potentialities to law-defying smugglers. At last, Mexican independence opened borders to friendly trade in 1821, and a commercial boom resulted.

As lucrative enterprises always have, this new venture made its needs known to the Federal Government. Congress sought to satisfy that early nineteenth century lobby by appropriating $20,000 "to be expended in securing treaties with the Indian tribes along the Trail"; treaties which would ensure peaceful passage through tribal territories. The emissaries of Congress, arriving with gifts in profusion, had no difficulty obtaining the "concessions" they sought. Unfortunately, however, the sanctity of treaties proved no greater under those primitive conditions than more recent pacts affirmed in the midst of civilization. The "treaty tribes" continued to pillage and, worse yet, other distant bands of Indians were attracted to the scene as the news of profitable brigandage spread through the Southwest.

This lesson in the inevitable failure of appeasement (then termed "tribute") brought mounting pressure upon Washington. Upon the particular insistance of Senator Benton, the War Department was constrained to order Colonel Leavenworth, in March 1827, to abandon his school project and, before summer, move four companies of his 3d Infantry to the junction of the Missouri River and the Santa Fe Trail.

On 8 May 1827, Colonel Leavenworth, expedition commander, selected the site with his advance party after a swift 22-day trip upstream from Jefferson Barracks. The planned location on the river's east bank near the mouth of the Little Platte, only a half a dozen miles downstream, proved marshy, subject to floods in the recurring high waters, and, worst of all, a "place of fevers." The high ground on the west bank was not only more defensible if attacked, it promised (though falsely as events proved) freedom from the fever scourge that wracked the valley.

Meticulously, Colonel Leavenworth dispatched to Washington a request for approval of his actions before the main body of his expedition arrived. That initial report included an item of information, the exact accuracy of which still puzzles engineers no less than lay readers: "On the right bank bluff, 150 feet above the river at an elevation of 896.0 feet above mean sea level . . ." The first figure implies, as later records substantiate, that the Missouri River was at low stage that May,

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but the precision of the latter, so quickly reported out of a vast wilderness, is a startler. United States Geological Survey benchmarks at the entrance of the Disciplinary Barracks, adjoining the north end of Sumner Place—site of the original encampment—today reads 896!

Fort Leavenworth was the fourth military post on the Missouri. Only one of its predecessors, Fort Atkinson, flew the Stars and Stripes. A Frenchman, De Bourgemont, built a fort on the banks of the "Big Muddy" near the mouth of the Osage River in 1724. Its existence was brief. Marauding Indians accounted for the small garrison and destroyed the buildings within the year. Some 80 years passed before white soldiers again traversed those lands. The Lewis and Clark expedition, celebrating Independence Day in 1804 at the site of the present city of Atchison, Kansas, reported the remains of an old French fort near Salt Creek at the northwest corner of today's Fort Leavenworth boundary. No other historical record, in France or elsewhere, explains the ruins he found. More probably they were a temporary home of itinerant fur traders in the eighteenth century.

Fort Atkinson (1819-1827) owed its existence to Stephan Long's need for an advanced base for his Rocky Mountain explorations. However, the loss of the *Western Engineer*, the first steamboat to navigate the Missouri's turbulent currents, impelled Long to follow the more southerly route across the plains. Shorn of its reason for existence, Fort Atkinson was ordered abandoned when the Post at Leavenworth was occupied.

24 Stars—21 Guns

Colonel Leavenworth omitted no formalities upon debarking the main body of his expedition, on 18 May, despite the absence of any audience. A tiny cannon barked 21 puny blasts into the valley's empty expanse. The 24-starred flag of the United States, flanked by the 3d Infantry's regimental standard, drooped lazily in the hot, still air. Below, on the blinding white powder sand of the river bank, four keel boats lay beached above the swirling current, black shadows clumsily foreshortened by the noonday sun. Some 200 soldiers immediately began the task of unloading while the two score women and children, their muscles cramped by 5 weeks' voyage, curiously made their way up the steep path to glimpse their future home. Their route, located today by the Santa Fe Trail markers near the Post railroad station, still shows the wagon ruts of later caravans.

A diary, irregularly recorded by Lieutenant S. P. Heintzelman, newly graduated from West Point and assigned to the 3d Infantry at Jefferson Barracks just too late for Thanksgiving in 1826, sheds more light than official records on the Post's earliest days. "Unloading commenced immediately" following arrival, and was "completed on the 19th." The night of 18 May, "soldiers of the Elk (Indian tribe) attracted by the cannon shots gave us an Indian dance in all the rain" which dampened but in no way stopped either festivities or work.

A tent encampment in the field (now the wooded park of Sumner Place) "near the center of the ridge top" was briskly erected. Simultaneously, log and slab huts for winter occupancy were started together with a low, stone wall, a crudely effective means of defense, embrasured for the four small cannon. The wall faced southward, commanding the most accessible approach. A portion of that wall, restored by the Leavenworth Chapter of the Daughters of the American Revolution on its original location, now buttresses the traditional Grant monument.

The expedition's supply train, livestock driven overland, quite remarkably kept pace with the keel boats. "Lieutenant Waters arrived on the opposite bank with

the cattle May 20th" but no mention is made of the task of driving those animals safely across the treacherous river. In spite of "the cattle," logistic rather than tactical considerations remained uppermost in the garrison's thoughts. The day Lieutenant Waters signaled his arrival, Heintzelman found time to "examine our ground which I found a most delightful place" and to wonder about the feasibility of wells to supplant the short, but exceedingly steep, haul for water from the river. The ridge contained, then as now, neither streams nor springs.

Wilderness Profiteering

Colonel Leavenworth dispatched a Lieutenant Birdsall and a detail of men to "open the road to Liberty" (Missouri on the east bank) "31 miles by land," which indicates a shorter route than today's highways follow. While the quarters floors "were finished with puncheons" (pounding by short logs) satisfactory enough for clay soil if the water could be kept off and the dust nuisance ignored, gardens, "one for each company and one for the hospital" were cleared (a simple matter of firing the prairie grass—few of Fort Leavenworth's many trees are indigenous). Nor did the farsighted commandant overlook the need for expansion. Along with all these other activities "ground was measured for a cantonment with room for the whole regiment."

The little garrison found itself "very much in want of fresh provisions" during its first month. This shortage was not influenced by current prejudices, materially influenced by hunting laws, that deer killed in the summer are not good eating, but rather by the scarcity of game.

When, on 9 June, "some market people with butter, eggs," and other produce appeared—presumably from the vicinity of Liberty for Birdsall's "road" had been completed a day or so before—exorbitant prices were asked." A measure of what those exorbitant price tags may have read can be gleaned from quartermaster accounts in the early years. Contracts were let with settlers to supply the Post with "bacon at $1.25 per cwt; salt pork $0.75 per cwt." Perhaps Heintzelman's wilderness profiteers expected the garrison to pay 3 or 4 cents a pound for bacon!

Still further excitement was experienced in that bustling first month with the arrival of "five keel boats and four barges from Fort Atkinson." The craft contained "the remainder of the 6th Infantry, together with etons and baggage" en route for Jefferson Barracks. (We are not enlightened as to the whereabouts of the original contingent of that regiment nor is the meaning of *etons* determinable.)

Apparently voyaging, even downstream, the turbulent Missouri during June high water had its risks. While the contingent of the 6th Infantry was landing to greet their former commanding officer, "two boats were nearly sunk in the exceedingly rapid current. . . One boy was drowned."

This fatality presumably befell the son of one of the 6th Infantry officers. Our diarist had neither the age nor the more modern usage of the word "boy" to apply it to soldiers. Previously he had written, "June 20. Buried a man. We buried two on march here" (although his march account did not mention the losses).

After a 2-day stay, the 6th Infantry continued its journey but the Post did not lack for visitors as it "had 50 mounted Indians of the Sac and Fox tribe ride in," more curious to view the strangers than the soldiers were about them. Indians had become an old and unexciting story to the four companies of the 3d Infantry.

Heavy Casualties—Few Deaths

In early August, Lieutenant Heintzelman makes one of his rare mentions of the families who accompanied their men into the wilderness. "Major Bliss and family

arrived from Jefferson Barracks"—a remarkably terse record for so difficult and dangerous a household excursion!

In that month "chills and fever," diagnosed as malaria by Assistant Surgeon C. A. Finley, only medical man at the Post, reached alarming proportions. Under orders to leave, because of "promotion to 2d Infantry," either a lost form of military advancement or an unflattering reference to his own outfit, Lieutenant Heintzelman was stricken.

"Upwards of one-fourth of command is sick." Luckily suffering only a light case, the chronicler attended inspection on 26 August: "out of 206 men we started with from Jefferson Barracks only 92 able to stand on inspection."

"Left Camp Leavenworth by keel boat at nine a.m." (6 September). The lieutenant's last reference to his Missouri service was the same dateline. "Saw large body of Indians camped on beach above mouth of Kansas River."

Chill fall winds eased the scourge of disease among the garrison and families. Unlike the Pilgrims in Plymouth, it was not the "first winter" but the second summer that nearly destroyed the settlement. Deaths were not heavy but nearly everyone was more or less incapacitated. Fortunately, no troubles arose from the Indians, perhaps because forays into the prairie to meet caravans from Santa Fe were beyond the capability of the stricken command barely able to tend its gardens and care for the sick.

Rotation, Model 1829

During that second winter, official notice of the situation by the War Department resulted in "unit rotation." The early spring of 1829 brought four companies of the 6th Infantry, many of them Fort Atkinson veterans, to relieve the garrison which, save for its surgeon and commandant, returned to Jefferson Barracks to recuperate. The newcomers carried strict orders from the Surgeon General, forerunners of twentieth century preventive medicine: "troops will spend the summer on the plains performing escort duty. Only the winter will be passed at the Cantonment."

Lacking a diarist to replace Heintzelman, Fort Leavenworth's third summer is almost a blank on the pages of history. Who maintained its gardens against the needs for winter, or how the families of officers and sergeants survived the "chills and fever," can only be gleaned by inference from the meager records in the archives of the War Department. The troops passed the hot months in dust and travel—on foot for the most part—escorting caravans. Not until 1834 could Fort Leavenworth officially include mounted troops in its garrison.

The show of force discouraged interest in brigandish Indian marauders who had not yet been provided white men's weapons by unscrupulous white gun-runners. Principal diversion in the sweat and grime were the occasional meetings, far out on the prairie, with Mexican troops exchanging convoy responsibilities with the United States forces. Spanish courtesy, rival hospitality, and Yankee generosity made the brief periods of joint encampment moments to be avidly seized—and long remembered.

Although "field service" ensured the health of the troops at the cost of their comfort, the small number of stay-at-homes also survived. The plague unaccountably abated. Mystery still clouds the chills and fevers that came nearer destroying Fort Leavenworth than any military foe. That they were malarial in origin is attested by the on-the-spot account of Surgeon Finley, an officer whose lengthy and distinguished professional services won him the position of Surgeon General of the Union Armies in the Civil War.

He never retracted his original diagnosis. Yet acceptance of his reports makes

the vicinity of Fort Leavenworth unusual as a place where malaria, once established as a scourge, simply disappeared. Ordinarily that scourge must be fought and conquered by act of man. While the marshlands of the Missouri River have been drained by river regulation and agricultural reclamation, those achievements are comparatively recent. By the outbreak of the Mexican War, although occasionally noted, malaria never again attained epidemic proportions in the Leavenworth area.

Solidly established after its 3-year struggle, Fort Leavenworth, as it was then designated, attained national prominence, on the first of many occasions. In 1830 the Federal Government ordered several Indian tribes to cross the Missouri to eastern Kansas, designated "Indian Country." The resulting great migration centered about the Fort which the Indian agent from Washington logically chose for his office.

Combat Leader Wins Peace

An abortive threat from Indians in the Charitan River district of Missouri aroused some apprehension while the tribes were moving. Colonel Leavenworth's quiet firmness, together with proffered support from the Jefferson Barracks garrison, closed the incident without bloodshed.

Lands in "Indian Country" were apportioned, surrounding Fort Leavenworth, north, south, and west. The once warlike Delawares (or Mohicans whose end was prematurely fictionalized by James Fenimore Cooper) became the Fort's entirely peaceful nearest neighbors. Soon embroiled with the indigenous Kansas tribes, the Delawares readily, others more reluctantly, acceded to an inter-tribal peace conference which was held at Fort Leavenworth in 1833.

Officially conducted by the civilian Indian agent, the peace pow-wow actually succeeded through Henry Leavenworth's inspired leadership. In 6 years, the Kansas Indians had learned to respect the grave, soft-spoken courtesy of the commander whose troops had brooked no interference with their mission yet scrupulously preserved aboriginal rights and pride. Reports comment how the "iron gravity of uncivilized Indians altered to more mercurial temperament when continued contact with white men brought a degree of civilization."

The council fire's diplomacy, adequately supported by the reality of military power, sufficed to pass the peace pipe around its heterogenous circle. Never again did Indian conflict trouble the locality. This happy result was Colonel Leavenworth's last distinguished service to his country. Before he ever knew of his promotion to brigadier general on 25 July 1834, the gallant gentleman died on 21 July while heading an expedition on the open prairies to pacify the Pawnees.

Having achieved true discipline among his men, the successful commander will be victorious in battle. Victory feeds upon itself and soon creates the feeling of invincibility and pride of organization which, together, magnify the intrinsic strength of the company manyfold.

Lieutenant General Maxwell D. Taylor

PREVENTIVE PSYCHIATRY IN THE COMBAT ZONE

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

TO CONSERVE the fighting strength is the traditional obligation of the Army Medical Service. In past wars and in the Korean conflict, army medical personnel have made great strides toward this objective. However, progress in the preventive aspects of field medicine has been limited, to a great extent, to the purely organic sphere of disease and injury. Relatively little consideration has been given to the practical fact that human effectiveness in combat is largely determined by an interaction of both somatic and psychic forces. Such a psychosomatic approach to the problem of individual combat efficiency is especially needed during these troubled times, as the increasing destructiveness of modern war imposes ever greater physical and mental hardships upon its participants. It is the objective of this article to detail the mechanisms involved in the total reaction of soldiers during combat in an effort to indicate additional ways and means of implementing more completely the mission of the Army Medical Service.

Nonbattle Casualties

The following manifestations of failure in combat delineate the magnitude and scope of the problem.

First, there are the numerous nonbattle casualties. Their frequency exceeds the battle casualty rate in increasing proportions the longer a unit remains engaged with the enemy. Examination of nonbattle losses reveals a considerable number—more than 50 percent—of nonbattle casualties in whose condition the psychosomatic concept is readily apparent, namely: (1) persons with slight organic disease or injury that is only mildly, if at all, incapacitating; (2) individuals with subjective complaints and negative or inconsequential physical findings; (3) self-inflicted wounds and other injuries to personnel that are at least the result of carelessness; (4) persons having broken or lost spectacles and dentures; and (5) psychiatric casualties. No doubt, many

If the attention of combat and medical officers is focused on preventive psychiatry, benefits in combat efficiency are as inevitable as the advantages which followed attention to prevention of organic disease

of these cases can be returned to duty by prompt medical management and treatment. Yet their services are lost for a long or short duration; and, in many persons, the original cause for evacuation will continue to operate after they are returned to duty.

Disciplinary Offenders

Second, there are the combat failures as manifested by disciplinary offenders. Of special importance in this group are the purely military crimes directly connected with the battle situation such as insubordination, disobedience of a direct order, misbehavior before the enemy, desertion, and absent without leave. In these cases the overt withdrawal from battle is plainly a psychological failure of adjustment which, in World War II, caused a serious loss of manpower.

Passive Combatants

Third, and perhaps most important from a numerical standpoint, there are the many men who remain in combat but contribute little or no fire power. This phenomenon has been noted by many observers of front-line fighting, and has been thoroughly studied by Brigadier General S. L. A. Marshall, who surveyed hundreds of infantry companies during World War II. In his book, *Men Against Fire*, General Marshall stated that only from 15 to 25 percent of rifle company personnel actually fire upon the enemy and exhibit aggressive activity on appropriate occasions. While this may be a low estimate for fire power participation in the Korean campaign, no one can deny that the large number of such passive combat personnel constitutes a serious problem in over-all battle performance.

Battle Fear

Common to all of these manifestations of combat failure is an apparent inability of the individual to assume or to continue an aggressive role against the enemy. This defect does not come as a direct result of enemy action, such as an incapacitating wound, nor does it arise from unavoidable battlefield conditions that may produce a disabling injury, such as frostbite; or a disease, such as infectious hepatitis. Rather, it stems from forces within the individual that seemingly bind or restrict the function for which he has been trained and equipped. It will come as no surprise that the ubiquitous phenomenon of battle fear is responsible for producing this inhibition of aggressive action. The crippling sensations of battle fear are well-known and are experienced by almost all combat soldiers. Indeed, it has always been considered good military strategy to weaken enemy resistance by intensifying or otherwise utilizing the sounds and other stimuli which provoke fear. In brief, the paralyzing property of battle-induced fear is the common denominator in the etiology of all forms of combat failure.

Causes

Time does not permit an adequate discussion of the origin and mechanism of fear. Certainly, it can be granted that fear is a basic biological factor that warns the individual of impending danger or catastrophe. The greater the extent to which one believes that his existence or

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the values held essential for existence are threatened, the more intense is the crippling feeling of fear. In battle, fear varies in direct proportion to the real or imagined danger from the enemy. It is usually judged by the intensity of enemy fire power, particularly when the effect of that fire power is confirmed by the grim presence of nearby casualties. Thus, the incidence of psychiatric casualties—the most direct manifestations of combat fear—regularly rises and falls with the battle casualty rate.

The influence of fear is more indirect in noncombat casualties, yet their frequency also increases with the length of time a unit remains in battle. The most striking effect of fear, as reported by General Marshall, is the failure of riflemen to fire their weapons in battle, although no such inhibition is present on maneuvers or on other occasions when battle fear is absent.

Infectious and Contagious

In its effect upon combat personnel, fear can be compared to the action of a virus or other infectious agent. If the dosage is sufficiently large, almost anyone may be overwhelmed in helplessness. Similarly, when a smaller but steady dosage of fear is administered over a prolonged period of combat, even the superior soldier will slowly but surely become ineffective. Like infectious agents, fear may be contagious, but it spreads far more rapidly than they, since there is little or no incubation period. Unlike infectious organisms, however, fear does not confer an immunity upon its victims. One may learn to adapt better under fearful conditions, but there is no diminution of the painful and paralyzing action of fear as a result of repeated exposure. This fact is responsible for the recognition of rotation as the only method of preventing the inevitable breakdown of veteran combat personnel.

Effect

Despite the devastating effect of battle fear, many combat participants not only function effectively, but often perform feats of bravery involving extraordinary aggressive behavior. Moreover, the influence of fear in battle is uneven. Its effect varies even in the same individual. Personnel of some units may consistently perform more effectively in battle than individuals of other units despite similar stressful conditions. It is clear that there are successful defenses against fear. Our understanding of these protective mechanisms is far from complete. However, we do possess some knowledge of the complex process that is involved.

Activity an Antidote

At the outset, it can be stated that there is an antidote to the poison of fear, namely, co-ordinated external activity. In combat, even speech is beneficial. However, aggressive action as in firing and purposeful movement produces marked relief from the sickening feelings of fear and allows the individual to think logically again and to make rational decisions. The reasons for this alleviation of fear illustrate well the psychosomatic basis for human behavior. Fear produces both a psychological and physiological effect upon the individual in order to prepare him for fight or flight. The same tension that grips and paralyzes the mind also presses the bodily mechanisms for action. Action, therefore, drains tension, whereas inaction fosters the damming back and building up of tension. This state of affairs is exemplified by the many occasions in combat where external activity is impractical or impossible. The increased painful tension produced by such an immobilized state under fire and its accompanying bodily effects are well-known to combat personnel whose body language, "sweating it out," is an apt description of their experience.

Therefore, any successful defense against combat fear depends upon either aggressive action when possible or an increased capacity to tolerate tension, or combinations of both methods. This simplified explanation, however, fails to indicate the interaction of somatic and psychic forces that makes it possible for the individual to adopt and to maintain such successful defenses. In other words, resistance against fear can be translated in terms of a psychosomatic process, the further understanding of which may provide useful tools for preventive efforts.

Personality Traits

A basic component of the psychosomatic defense against fear is the role played by personality structure. Obviously, individuals vary in their innate ability to control fear.

Passivity

Several character traits are pertinent in this respect, the most important of which is passivity. A marked degree of passivity produces dependence on others, avoidance of conflict, and helplessness when confronted by minor stress. It is a product of early conditioning that banned any aggressive behavior by threats of retaliation or withdrawal of affection. Such individuals repress all aggressive drives as being dangerous and evil. In combat, they are quite vulnerable to fear because of their relative inability to discharge tension by action. The severely passive person demonstrates in an exaggerated form the problems of almost all combat personnel since they, too, possess some degree of the same character trait. This is not surprising, since our culture demands obedience in the early formative years and deplores physical acts of aggression except under specified conditions such as some of the sports. Later, society enforces this attitude by realistic threats of retaliation and social ostracism. It is difficult to change from the passive habit patterns of peace to the death-dealing aggressive action needed in war. Yet, under conditions to be discussed later, such a transition has been shown to be quite possible if the degree of passivity is not too marked.

Conscience

Another personality facet that bears upon combat adjustment is the self-critical faculty, commonly referred to as conscience. This is an internalized representation of the rules and standards of society that were first laid down by the parents. It forces the individual to conform to duty and to other social obligations by threatening withdrawal of self-esteem. The well-known painful feelings of guilt result if important ethical standards are violated. In combat, conscience may serve as a powerful lever, forcing the soldier to remain in battle and to tolerate fear lest he suffer the pain of self-condemnation. Individuals with small or permissive conscience faculties have no counterthreat toward utilizing manifestations of withdrawal from combat. In essence, conscience functions as an internal policeman. It may not force the soldier to fire his weapon, but it does curtail his tendencies to flee the painful battle situation. This self-governing faculty can be utilized as a basis for further influencing the individual toward aggressive action as being the only correct behavior in battle that will be rewarded by a feeling of self-esteem.

Self-Love

A third personality trait pertinent to combat adjustment is the universal characteristic of self-love, termed narcissism by psychiatrists. It is, perhaps, better understood as the self or egocentric component of the person. Varying degrees of this character trait determine the extent to which an individual can

love or be concerned for persons other than himself. Usual quantities of self-love do not prevent devotion to family and friends, and lesser feelings for more remote society groups such as the state and nation. However, it is rare to find individuals comparable with the historic Nathan Hale who regretted that he only had one life to give for his country. In combat, individuals dominated solely by self-love are considerably more affected by fear, since their entire interest is in the self, whereas the average soldier is able to transform some quantity of fear into concern for the safety and welfare of his buddies.

It is hoped that the foregoing discussion of personality traits does not give the impression that they play only a fixed role in combat adjustment. Such an impression would warrant the conclusion that only by the selection and removal of vulnerable personnel could combat failure be prevented. Nothing is further from a practical solution of the problem. First, there are no available methods that can correctly estimate the degree and strength of the various personality constituents. Second, the many imponderables in battle make any estimation of personality structure of doubtful value. Truly, the battle is the pay-off when individuals may perform feats of endurance and bravery that neither they nor others can predict. It is only when marked passivity or self-love, or both, are present in an individual that change to a more effective combat adjustment is difficult or impossible.

Physical Weakness

Attention can now be directed toward the less structured elements of combat adjustment. Of obvious importance in any psychosomatic concept is the physiological status of persons who struggle against combat fear. Weakness in the physical sphere automatically diminishes ability to perform the necessary activity required for aggressive action. An individual with decreased physical power is temporarily like the severely passive soldier who can only absorb fear, because of inability to be aggressive. It has been repeatedly observed that undue fatigue and deprivation of food, sleep, and water may readily produce ineffective combat performance. For this reason, combat units must be placed in reserve at periodic intervals for rest and recuperation. Intercurrent illness such as diarrhea, fevers of undetermined origin, malaria, and hepatitis, masked by the usual discomforts of men in battle, produces a similar breakdown in the defense against fear.

In Korea, during the summer and early fall of 1950, cases of Jap B encephalitis were evacuated as combat exhaustion because their initial symptoms indicated disabling fear. The necessity of maintaining the physical well-being of combat troops is well-known, but perhaps less appreciated is the fact that smaller or less apparent weakness in the soma may upset the psychic control of fear. For this reason alone, and exclusive of morale purposes, combat effectiveness can be enhanced by attention to diet or to other measures that maintain physical status.

Training

Related to physical capacity is the influence of training. A realistic training program increases physical stamina and prepares the soldier to endure the hardships of combat. But even more important, training provides the technical information and practice in the use of weapons that make possible aggressive behavior. Instruction in combat tactics facilitates a better awareness of danger and the protective measures that are best employed. Despite these advantages, troops new to battle have an increased number of all types of combat failure.

This is especially true of replacements who are suddenly placed into active com-

bat. In part, at least, this defect of new troops lies in their inability to acquire rapidly the aggressive patterns of behavior and the overevaluation of battle stimuli because of inexperience. As a preventive measure, a battle indoctrination period of from 7 to 14 days had been instituted for all infantry divisions in Korea. Any method that allows the replacement to become acquainted with the members of his combat group, enlarge his knowledge of enemy tactics, and become familiar with his weapons will surely diminish the first impact of battle and aid in building defenses against fear.

Group Identification

The most important component in the psychosomatic defense against battle fear is the powerful support that can be obtained from the group or combat unit. This sustaining force, called group identification or group unity, refers to the emotional bond that develops among individuals who share common hardships and danger. It has been repeatedly demonstrated that positive group unity is the distinguishing characteristic of successful combat units who endure severe battle losses with a minimum of individual combat failures. The intricate process by which such successful groups operate is as yet not completely understood.

Seemingly, group identification spontaneously arises as a defensive measure by two or more persons in response to a common menace. Nowhere is there a greater need for such an alliance as in battle, for, as well stated by General Marshall, "The battlefield is the lonesomest place where men may share together." In this situation, men move toward each other both figuratively and literally for protection and emotional warmth. When group unity proves by battle test to have value, strong friendships are rapidly formed and intensified by the mutual exchange of affection and protection.

Effect

This intense emotional relationship, forged in the crucible of combat, exerts a profound influence upon character and behavior. First, there tends to be displacement of quantities of self-love by concern for the welfare of other group members. Less fear is then felt for the self, and the consequent decrease of inhibition facilitates aggressive behavior that can be used in behalf of others. Such a mechanism accounts for heroic deeds in battle by individuals who seem heedless of personal danger, because they are intent only upon securing the safety of their friends. Second, this attitude toward others is reinforced by a strengthening of conscience faculties that include the ideals and standards as set forth by the combat group. The individual is compelled to abandon selfish desires, or else suffer self-condemnation and risk losing the actual and emotional support of the group. Even the poorly motivated individual is literally forced to adopt the prevailing group attitude since the battle situation is hardly a place to be left alone. Third, there is the effect of the group upon the character trait of passivity. As the passive individual comes to feel more secure by identification with a strong group, he adopts their aggressive attitude. It is sometimes amusing to note the recent replacement to a veteran unit who not only talks and acts like the others, but assumes the entire history of their vicissitudes and grievances. Even the severely passive person can become effective if bolstered by a strong buddy.

The result of favorable group identification for the individual is lessened vulnerability to battle fear and an increased tendency to aggressive behavior. Its benefits are revealed when group unity is suddenly disrupted or destroyed in battle. The remaining individuals, stripped of their support, are suffused with fear; and many become temporarily ineffective.

Negative Group Spirit

Unfortunately, not all units form favorable identifications, with the benefits that have been described. Some groups, for various reasons, do not develop unity of spirit. Their combat efficiency, if any, is due solely to the work of a few aggressive individuals. Such groups are merely a collection of soldiers in a military unit. Other units may have cohesiveness and other characteristics of group identification, but are poorly motivated for the combat mission. With this defect in group attitude, members may support each other in condoning manifestations of combat failure. Newcomers find themselves impelled to adopt the negative standards of the unit.

Company Leadership

Because positive group identification plays such a basic role in the formation of defenses that prevent combat failure, any factor or condition that contributes toward this goal is of major importance. For this reason, leadership has been recognized as a vital force in the success of combat units since the recorded history of warfare. For purposes of this report, only leaders of company grade officer ranks are considered, since they live in intimate contact with their men and are in a key position both to initiate group unity and to mould its attitude. Leadership in battle is a necessary phenomenon because the hazardous situation produces a strong demand for guidance and help. The leader who fulfills this need becomes beloved like the good parent and can exert extraordinary influence upon the attitudes and the behavior of his men. On the other hand, inability to perform adequately in combat and to protect the group, as well as callous or unfair management, will almost certainly induce a negative group attitude. The combat leader also symbolizes authoritarian military pressure. If he is well regarded, the combat mission is viewed as necessary. There are many writings on the attributes and qualities of leadership, all no doubt pertinent and important. However, it is far easier to detect errors in leadership than to point out positive qualities except in general terms, because individuals of widely varying temperament and using a variety of methods may be efficient combat leaders.

Communication

In the further consideration of factors that affect group unity, there has been a growing recognition of the importance of communication in group identification. Talk literally links individuals together. It not only prevents loneliness, but the information transmitted facilitates aggressive behavior. Without knowledge as to the whereabouts of others and the specific purpose and nature of the battle mission, the combat soldier has no realistic method of determining when and where to be aggressive. The result is inaction with its consequent damming up of tension that results in decreased efficiency when directly called upon to move and fire. Even the method of communicating becomes important, since the choice of words and the manner in which they are spoken may convey different meanings or degrees of urgency. Here is another area in which the combat leader must exert considerable attention, although all group members must be taught to participate in order that information can be adequately disseminated.

Rewards and Punishments

Another factor that contributes to group motivation is the management of rewards and punishments. Because the combat group is deprived of gratification both in material comforts and of their usual objects of affection, further deprivations, considered unwarranted by the group, are met with marked resentment, which, if

they are continued, may change or prevent positive motivation. No matter is too small in this respect. For example, during one period of the Italian campaign in World War II, cigarettes sent to the combat troops were not of the so-called "name" brands. Vigorous resentment arose because it was believed that the name brands were being distributed to rear troops. Similar difficulties arise in the distribution of food, clothing, beer, and mail. However, deprivations and hardships known to be unavoidable are quite well tolerated. It should be emphasized that the foregoing discussion does not refer to so-called "griping," because all too often matters of this kind may be summarily placed in that category and are even believed to be a sign of mental health. The combat soldier is well aware of the difference between his griping and the occasions when his legitimate needs and requests are denied for insufficient reasons. It should be apparent that to deprived persons, ordinary comforts and even what are considered civilian necessities, such as a bath, a can of beer, and a letter from home, are magnified to extraordinary pleasures. A similar emotional attitude pertains to promotions, decorations, rest leaves, and the like. The combat leader must be scrupulously careful to avoid any suspicion of unfairness. Punishments in a combat group should be prompt, firm, and in accord with the situation, or the group opinion will be that illegal behavior is not only condoned but rewarded.

Summary

To summarize briefly at this juncture, it is the contention of this report that individual performance in combat is determined by the struggle in which the resistant properties of personality, physical status, training, group unity, and leadership are opposed to the crippling effect of battle fear.

This approach to the causation of combat failure points to logical measures of prevention, since defects in any of the foregoing sustaining forces render the combat participant vulnerable to the inroads of fear.

It is believed that efforts to prevent individual combat failure are well within the province of field medicine and should be the special concern of battalion, regimental, and division surgeons. In their role as staff members, these medical officers can enhance their value by providing the technical information needed either to initiate methods of improving the efficiency of troops or to correct errors that are causing combat failures.

The Medical Officer

A major prerequisite for field medical officers in assuming this additional role in preventive medicine is a reorientation in viewpoint and in their duties and functions. The medical officer should appreciate that he need not restrict his talents to the relatively narrow realm of treatment and evacuation. He is also a staff officer with a major responsibility of advising his commander on all matters that will conserve effective manpower, whether it be in the prevention of organic disease, psychological failure, or combinations of both. In such a function, the medical officer should not believe that he must be equipped with the technical knowledge of a psychiatric specialist. He understands the emotional reactions of combat soldiers far better than most psychiatrists because he is intimately associated with combat personnel and is personally identified with the battle situation. As illustrated by this article, much of the psychological data required by the field medical officer is available and more will be forthcoming in the future from research projects that are now underway.

In order to perform this staff function,

battalion and regimental surgeons cannot seclude themselves in their aid stations and play a passive role of waiting for casualties. They should visit the various units, consult with the company officers, and demonstrate interest in all manpower problems. When information gained on these visits is combined with data obtained from patients, the medical officer, particularly the battalion surgeon, is in an excellent position to indicate problem areas and, perhaps, their causation as well.

The Combat Officer

Combat officers also should be taught all the information we have in this field of prevention, including the fact that their medical staff officers can be of considerable aid in supplying both information and technical advice.

It is the writer's belief that if attention is focused on this aspect of preventive medicine by both medical and line officers, benefits in combat efficiency are as inevitable as the advantages that followed attention to prevention of organic disease. Both situations involve the principle of first recognizing that a problem exists, then of developing the methods of prevention which logically follow and which can be developed further.

For the medical officer, work in preventive psychiatry can be especially gratifying. It will broaden his outlook and make him truly a specialist in conserving the fighting strength. He can better keep abreast with his civilian colleagues who, more and more, are utilizing a psychosomatic approach to the prevention of failure in civilian life.

NEXT MONTH

The next issue of the MILITARY REVIEW will feature the article "Joint Airborne Operations," by Lieutenant Colonel I. A. Edwards, Airborne Advisor at the Air University, Maxwell Air Force Base, Alabama. Colonel Edwards discusses the historical background, the decisive operations, and the future of joint airborne operations. He stresses the necessity of having prior joint planning and training to ensure the success of any joint airborne operations.

"The Soviet Army," from *L'Armee-La Nation* (Belgium), will be included in the "Foreign Military Digests" section of the magazine. This article studies the Soviet Army, considering its arms and personnel, estimating its capabilities from the point of view of Soviet history, the characteristics of the Soviet soldier and his weapons, the army organization, the worth of the command, army tactical methods, the logistical system, political conditions, geographic conditions, and the economic conditions involved in feeding a future conflict.

VITAL SPARK

Major Reginald Hargreaves, *British Army, Retired*

***Some folk have said that the word "duty" is to be found on every page of my dispatches and the word "glory" not once. This is meant, I am told, as a reproach; but the foolish fellows do not see that if mere glory had been my object, doing my duty would have been the means.*—The Duke of Wellington.**

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

IN MANY of the citations accompanying the award of personal decorations will be found the phrase " . . . for outstanding devotion to duty." It is a term of commendation well worth pondering.

With the serviceman, automatic devotion to duty is apt to be taken a little too readily for granted; the motives which animate, or stultify, it are rarely accorded due consideration. Yet the punctual observance of duty can frequently be irksome and, particularly where the fighting services are concerned, hedged about by acute discomfort and, of course, infused with a very lively danger. Doing your duty, in effect, so often entails your engaging in some form of activity peculiarly repellent, at a moment distinctly unfavorable to its attempt. In short, if the question of *devotion* to the abstract idea of duty-fulfillment be absent, it is more than likely that the obligation will be shirked or even completely abnegated.

What, then, is the incentive which inspires a man to the strictly punctilious observance of all that is demanded of him by his duty?

To this conundrum there can be no general answer, since the upbringing, the standards, and the instincts, and therefore the reactions, of the individual concerned are likely to differ widely according to the personality he has developed; in itself the outcome of pre-natal influence and the *milieu* in which he has been born and bred. To a large degree, it is a matter in which the subtle elements of heredity and environment are bound to play an influential part; they may even act as a determinant.

Heredity and Environment

With men cast in the mold of a Washington or a Wellington, born and raised in that creed wherein unassailable integrity and the urge of service to the community are so much a part of their heritage as to have become innate, the performance of duty is no more than an automatic response to the demand for its fulfillment. "Theirs not to reason why"; theirs not even to think specifically about what they do as they do. Theirs only to let what has become a confirmed impulse act as guide to them; to keep the hand to the plough until the end of the long furrow has been turned. Born to the purple—with all the obligations as well as all the privileges that such a nativity entails—complete and unreckoning duty-fulfillment is as natural and uncalculated as the act of breathing itself. Moreover, it is to be borne in mind that, exalted above their fellows as your Washingtons and Wellingtons may be, they remain, fundamentally, human beings; they would be far less effective leaders were it otherwise. So as

the long toil wears toward its end, the reward of nation-wide recognition and esteem can scarcely help but kindle a glow of justifiable self-commendation, as they pass in review the record of unremitting and selfless service with which—as they can hardly fail to realize—history will come to associate their names.

One Standard for All

However, what of the man denied so lofty a spiritual heritage? What of the "John Does" and "Richard Roes" born, so to speak, on the wrong side of the tracks, and reared in the shiftless, rough-and-ready ways of a world equated on evasion and contrivance, if not on actual contravention of the law? Are we to take the line of least resistance and concede with the melancholy poet that "God looks for no lustre from the minor stars"? Or are we to demand a similar standard of probity and self-abnegation from the socially handicapped and spiritually undernourished as that we can rightfully expect from those more happily circumstanced in their birth, environment, and upbringing?

In the service sense, at least, there can be no possible doubt about the answer. Where the standards of duty are concerned there can be no paltering, no faint heartedness, no half-way house. They must be of the highest, for one and all; in all circumstances they must be most punctually and strictly observed. However, if they are to be more than an onerous obligation, resignedly—or resentfully—accepted, *they must be sublimated by the very positive quality of devotion.* The absence or the presence of that element in him marks the difference between the man who goes with the herd and does his duty as best he may—until the day comes when he cracks—and the man to whom duty-fulfillment takes on all the glowing quality of a vocation. The first-named is no more than bound to duty, the second is dedicated to it—a distinction with the most stupendous difference in the world.

There have been many men, in the long history of warfare, to find place in the proud company of the dedicated; men so devoted to their duty that it could justly be said of them that they did even more than it demanded of them, even at its sternest. The handful of Spartans who, for 3 days on end, held the pass of Thermopylae against the swarming Persian hordes offer the classic example of selfless devotion to duty to the point of wholesale immolation. However, it is impossible to overlook the fact that in this Augustan "Custer's Last Stand" the corporative instinct, the shoulder-to-shoulder bolstering up, operating at its most constructive, unquestionably served to reanimate and recharge those among the cohort of less vigorous fiber who, on their own and denied the collective example of their fellows, might well have faltered and fallen far below the standard maintained by the sum total of their comrades.

The Individual

It is the man alone, the "lone wolf," whose unswerving devotion to duty scales the heights of complete self-abnegation —that is the man before whom we stand in the silence of reverent respect.

The vital spark is that single-minded devotion which places duty before all thoughts of self and counts the day well spent only when the self-same stern, unbending spirit of duty can find no cause for reproach

Drummer Scully

Of such kind, for example, was Drummer Scully, of the 69th Regiment of British Foot—a mere lad, it is true, but with

the *feu sacré* which bespeaks " . . . the constant service of the antique world, where service sweats for duty, not for need."

As Admiral William Hotham tells of the event:

> General O'Hara, sometime Governor of Gibraltar, was wounded and taken prisoner, leading a sortie from a Toulon besieged by the French Republican forces. He was conveyed to Paris by his captors and confined in the Luxembourg, where, at every opportunity, he was wantonly insulted. Among other methods adopted of doing this, the Republicans brought a young English drummer (Scully) into the dungeon, whom they ordered to sit down and converse with the General on familiar terms; and, to complete the malignant farce, to drink with him. In spite of beatings and every sort of evil usage, whenever the bottle was given to the plucky boy he rose, and touching his cap to the General, defiantly drank the King's health.

It was a futile gesture; but it was no less the utmost expression of loyalty and devotion to duty to be achieved in the prevailing circumstances. Moreover, it was made without reck or fear of the brutal reprisals it was certain to provoke. It was, in short, the *summum ultimum* of one who put duty-fulfillment first among the calls on valorous manhood.

Sergeant York

To come to later days, has duty ever been more faithfully or steadfastly performed than by Sergeant Alvin York, the Tennessee mountaineer, conscripted "pacifist," and phenomenal marksman; whom General Pershing once described as the bravest and most devoted soldier in the whole of the forces under his command?

It was on the Argonne that this dour, disapproving, but doughty, fighter gave the amazing demonstration of his quality which was to earn him fame imperishable. On 6 October 1918, York and 16 of his comrades were sent out on a mission to try and exterminate a group of German machine-gun nests. Coming under fire as they approached their objective, six of the party were killed almost instantly, and three more wounded. With the Springfield rifle over which he had attained such mastery, he personally accounted for 25 of the *Feldgraus;* then rallied the remnant of his contingent and led them in to silence 35 enemy guns and round up no less than 132 prisoners.

The feat has been equalled, of course, if not surpassed; but scarcely by a man whose birth, upbringing, outlook, and previous experience had so little conditioned him for warfare as in the case of Sergeant York. A predisposition toward devotion had been canalized into dedication to the new concept of duty; and thenceforward there could be no deviation from "the straight and narrow path."

Sometimes the task which duty-fulfillment demands of a man is plain and unmistakable. It beckons with a clear and imperious gesture, and it is simply up to him to brace himself to make the adequate response. However, sometimes he is confronted with the necessity of determining which one of two courses of action the highest regard for the fulfillment of his duty would counsel him to pursue. "All war," wrote James Wolfe, "is a choice of difficulties"; but the man confronted with alternative lines of conduct can be pretty sure that if he elects for the harder, or more "positive," action, rather than take the "negative" course of following the line of least resistance, he will have done exactly what the highest standard of duty-fulfillment would demand of him.

Major Reginald Hargreaves, British Army, Retired, served during World War I in France and at Gallipoli. While serving as a divisional staff officer in 1917, he was severely wounded and was subsequently retired at the conclusion of the war. Until the outbreak of World War II in 1939, when he was recalled to active duty, he had devoted himself to historical writing. Major Hargreaves has been a frequent contributor to many military publications throughout the world during the past years. Among his many books is "The Enemy At the Gate."

Remagen Bridge

At Remagen, for example, Lieutenant Ernest James Burrows might well have comfortably assured himself that to rush his company across that invitingly unbroken-looking bridge might well be to lead his men into a trap; that his primary responsibility was to refrain from committing them to almost certain annihilation; that he would have done all that could be expected of him if he "played possum" and "reported back." Fortunately for the future destinies of the war, he chose the riskier but more "positive" course; and in so doing not only influenced to a remarkable degree the future course of events, but gave new life to the old Nelsonic dictum that "Very often the bold course is also the safest." In effect, there is nothing but sterling truth in Admiral of the Fleet Lord Fisher's forthright affirmation that "Rashness in war is prudence; prudence in war is imbecility."

Admiral Jellicoe

This is true 999 times out of 1,000—but not quite always. At the battle of Jutland, Admiral Jellicoe—the only man, it has been said, who could have lost the war in a single afternoon—reluctantly compelled himself to abandon the further pursuit and re-engagement of the enemy, just when opportunity seemed to beckon most enticingly, for it was clear that his higher duty insisted that the preservation of the fleet-in-being must take precedence over his very natural impulse to try and inflict even further injury on the foe. That was a "negative" decision which, however wounding to the immediate urgent fighting instinct, embodied "positive" long-term considerations that only the most exacting sense of duty-fulfillment could have brought to mind in a moment of such high tension and well nigh irresistible temptation.

In effect, even the highest sense of duty must be supported by knowledge, if the right decision at the right moment is in any way to be assured. For as Bossuet has so aptly phrased it, "There is nothing so dangerous as active ignorance."

Moreover, the cultivation of the duty-sense and the requisite technical knowledge to direct it to the right decisions, not only go hand in hand, but gain reciprocal strength, each from the other. Knowledge is power; it is also confidence. The Washington who directed the successful surprise attack at Trenton was not only an infinitely more knowledgeable leader than the youthful militia colonel who had faced reverse at Fort Necessity; he was in command of a far greater reserve of confidence. The veterans who stormed across the shot-swept half mile of no-man's-land and lay between them and the British left at Yorktown were a very different proposition to the raw, unhandy recruits whom Von Steuben had cursed with such encouraging good humor amidst the snowy wastes of Valley Forge. "Increase of appetite had grown by what it fed on," and as the concept of unswerving devotion to duty had gained in strength, so knowledge of how best to animate and direct it had come to give it even greater force and impetus.

However, the vital spark of devotion to duty had to be there, or knowledge would never have quickened into life.

"Will you tell me, Master Shallow, how to choose a man?" demanded wise old Falstaff; and then proceeded to answer his own query with a sort of inspired and lambent common sense. "Care I for the limbs, the thews, the stature, bulk, the big assemblage of a man? Give me the spirit, Master Shallow!"

Duty and Reward

To the popular hero at the head of the procession—savoring the magnitude of his conquests in the clangor of the bells, the brazen crash of music, and the frenzied

plaudits of the crowd—the sense of rewarded duty-fulfillment must be very keen and near. However, for the rearmost file, trudging in the dust kicked up by the conqueror and his immediate entourage, the sense of close identity with the cause of celebration is apt to be considerably less acute. Yet his contribution to the common cause, were the fact to be generally realized, is no less vital than that of the man in the plumed hat and the epaulets who "takes the bow." Nor is his responsibility a whit the less; for a sleeping sentinel can betray a beleaguered citadel to such a degree that it becomes beyond its commander's power to provide a remedy—a fact which some of the world's great captains have been swift to recognize. "How do you account," asked one of Wellington's admirers, "for your having so consistently beaten the French marshals?" And in an instant came the Duke's reply; "Because their soldiers always got them *into* scrapes, while mine always got me *out* of them."

Unhonored and Unsung

Wellington was more fortunate than most, in that his armies contained a high proportion of men warmed with the *feu sacré* of a transcendent devotion to duty. They were men animated by no hope of reward—other than the secret approval of their own consciences—nor stimulated, as is the officer and junior leader, by the obligation to set an example to their fellows. The humblest cogs in the machine, they were—and they remain, to their commander's salvation and their own imperishable glory—imbued with what Alexander Pope describes as "the vital spark of heavenly flame," which at all times and in all circumstances puts single-minded devotion to duty before all thought of self, and only counts the day well spent when the selfsame stern, unbending spirit of duty can find no smallest cause to reproach them with neglect. So far as public recognition goes, they live and die very largely "unhonored and unsung." However, without them, their indomitable courage, their unwearying fortitude and endurance, their craftsmanship in arms, their unquenchable cheerfulness under trial, their steady resilience in the hour of threatening disaster, and, withal, the stoicism with which they bear with injustice and neglect—a nation's entry into war would be no more than a gesture soliciting defeat.

It is the sheer devotion to duty of men like these that makes the creed of discipline both comprehensible and acceptable; as it endows *esprit de corps* with concrete meaning. Moreover, it is that selfsame devotion to duty which transforms the ordinary fighting-man from a military robot into the warrior invincible—armed *cap-à-pie* in thews, mind, and heart. Men so inspired are of that happy breed of whom Cromwell wrote as "men who make some conscience of what they do; men who know what they fight for and love what they know." Those are the men who will scale "the great bare staircase of their duty uncheered and undepressed."

The Armed Forces have the responsibility of molding their trainees into an effective fighting machine. In carrying out this responsibility, we must not forget that a serviceman's combat effectiveness is measured not only in physical fitness and military skill but in willingness to fight under the most disheartening conditions and to stick it out to the end.

Major General John M. Devine

INDOCHINA
The Seven-Year Dilemma

Bernard B. Fall

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

ON 19 December 1953, the war between the French Union Forces and Ho Chi Minh's Communist-led Vietminh will be 7 years old and there are but few indications at hand to point toward its possible end either through military victory or negotiation.

However, the situation has matured sufficiently to enable the military student to take stock of the various factors which might make the war in Indochina a useful example for future operations in other areas with similar climatic and terrain features.

Prior to World War II, the Indochinese Federation, as it then was called, was composed of three protected kingdoms, Laos, Cambodia, and Annam; one protected territory, Tonkin; and one French colony, Cochin China. France had consolidated her control over Indochina during the last 30 years of the nineteenth century and uprisings against French rule had been both few and completely unsuccessful. The only revolt of any consequence occurred at Yen Bay, Tonkin, in 1930. This was ruthlessly put down, and practically eliminated all major anti-French leaders—who were exiled to the penal colony of Poulo Condore Island off southern Indochina.

With the outbreak of World War II, France was compelled to withdraw her best troops from Indochina in order to use them in the European theater. The result was that Indochina—particularly after France's defeat in June 1940—was left wide open to ever increasing Japanese pressures. The Japanese, in particular, sought to obtain control of the Haiphong—Yunnan railroad in order to attack Generalissimo Chiang Kai-shek's main supply bases around Kunming.

Indeed the armistice with Germany had hardly been signed before a Japanese military mission under General Nishihara appeared in Hanoi. On 30 August 1940, Japan began to occupy a transit base at Haiphong and all major airfields of Tonkin. On 29 July 1941, Japan further occupied naval and air bases at Saigon and Tourane, and shortly after Pearl Harbor, Indochina was in fact as much a Japanese-occupied territory as any of the other southeast Asian countries which were overrun by the Japanese forces. The only difference being that the French still maintained their internal administration and lightly-armed military forces. It is estimated that the total French military forces available in Indochina did not exceed 15,000 men. However, with the war

After 7 years of war between the French Union Forces and the Communist Vietminh troops in Indochina, the present military aspect points to a stalemate there similar to the one which presently exists in Korea

situation turning to the advantage of the Allies, the Japanese decided to eliminate the slight threat to their communications lines which the small colonial army represented, and on 9 March 1945, Japanese troops and secret police wiped out all French resistance. Only a few units succeeded in escaping the Japanese *coup* and succeeded in fighting their way through the jungle into Free China. Among these units was a task force of a few thousand men under the command of Generals Sabatier and Alessandri.

At the same time, all French administrators and civil servants, as well as most of the white or Eurasian civilian population, were imprisoned in various internment camps. Some of these internment camps achieved a notoriety in the Far East comparable to that of Dachau and Buchenwald in Europe.

The Vietminh

While the Japanese eliminated the French, the various nationalist and Communist groups began to reorganize themselves in order to take over as rapidly as possible whatever regions the Japanese did not occupy. Soon, such groups controlled seven provinces in Upper Tonkin as well as large tracts of land in Annam. The elimination of the French brought about a complete breakdown of Allied intelligence which, hitherto, had mainly relied upon its French contacts and this factor favored the activities of these groups. The new situation resulted in numerous contacts between the guerrillas and OSS as well as Chinese Nationalist intelligence groups. Many new weapons (bazookas, submachine guns) as well as radio sets and instructors were parachuted to them so that certain of the guerrilla units soon gained an appreciable amount of combat strength and efficiency. No distinction was made as to whether the groups in question were subordinated to a recognized liberation movement or whether they pursued aims of their own or of a particular political party. As it happens, it was the Communist groups under their Moscow-trained leader Ho Chi Minh which possessed not only the necessary strength but also the adequate purposeful leadership necessary to exploit the existing situation to the fullest.

On 6 August, the first atom bomb gave the signal of the beginning of the end of Japan's military might. On the following day, Ho Chi Minh's guerrillas became the "Vietnam Liberation Army." A shadow government, called the "Vietnam People's Liberation Committee" was set up during the following days. In the meantime, the Japanese handed over control powers to a newly-created "government" of their own choosing just as they had done in the Philippines and in Indonesia. However, the latter had but little chances of survival against the organized onslaught of the Communist forces, and on 20 August 1945, the Vietminh solidly held the whole north of Vietnam (as the three coastal territories of Indochina collectively was now called) while the Japanese quietly abandoned their puppets to shift for themselves. In fact, on 25 August, the Emperor of Annam abdicated and handed over his powers to Ho Chi Minh. On the same day, a "Provisional Executive Committee for South Vietnam," including seven Communists among its nine members, took control of Saigon. Within a fortnight after Hiroshima, the red flag of the Vietminh flew over all of Vietnam.

Mr. Bernard B. Fall, a French citizen and reserve officer in the French Army, served during World War II with the 4th (French) Moroccan Mountain Division. From 1946 until 1948 he was a research-analyst for the War Department at the Nürnberg Trials and later worked with the United Nations Tracing Group in Germany. Mr. Fall received a master of arts degree from Syracuse University, and he is presently in Indochina preparing his doctorate thesis on the Vietnamese National Government.

Despite the dangerous overextension of their lines in view of the number of troops available, the French persist in maintaining their outposts in Indochina. Above, a French advance post in the region of Van Ly in Indochina. Below, supplies being brought across a river near An Khe in Indochina.—French Embassy Information Division photos.

Return of the French

After VE-day, the French began to plan for an eventual re-occupation of Indochina within the framework of the operations planned by Admiral Mountbatten's South East Asia Command (SEAC). The initial force set aside for that operation was composed of two infantry brigades, equipped with British matériel, from Madagascar and the Cameroons; one United States-equipped armored brigade from the 2d French Armored Division; and one composite parachute commando unit, for special missions behind the lines.

Shipping difficulties were encountered because of the impending assault on Japan which prevented an early departure of the assigned units. As a result of the Potsdam Conference it was decided that French troops were not to enter Indochina for the time being and that it was to be split into two zones along the sixteenth parallel; the northern part to be occupied by Chiang's Kuomintang troops, the southern part to be administered by the British.

This was a serious blow to the French—the more so in view of the fact that they had not been invited to the Potsdam Conference. General de Gaulle, then the premier of the French Government, decided to send all available forces to Indochina on whatever shipping could be found. Thanks to the help of SEAC, one armored brigade of the 2d French Armored Division and elements of the 9th Colonial Infantry Division were finally on their way to Indochina by the beginning of autumn 1945. In the meantime, teams of French paratroopers and newly-appointed colonial administrators were parachuted into Indochina, in order to re-establish "law and order." These people were massacred with but a very few exceptions.

A small British force of 2,500 men under General Gracey was landed in Saigon on 25 September to occupy a territory that was slightly larger than Korea. It was clear that they could do little more than hold their own in Saigon, where the Japanese garrison alone numbered more than 5,000 troops.

On 2 October 1945, the first French elements arrived in Saigon. One company of paratroopers of the 5th Colonial Infantry Regiment was airlifted to Cambodia and another to Laos, while the remainder established a hedgehog position around the Saigon key area. General Leclerc, Commander in Chief of the French Expeditionary Forces, knew that one element alone played in his favor—speed. He knew that he had to make the utmost of the mobility of his airborne units and of his armored brigade (which had landed toward the end of October 1945) so as to occupy the strategic points of the country *before* the Vietminh had had time to concentrate an appreciable number of troops around the southern key areas. Within less than 5 weeks and with less than a full division (the French troops who had been detained in Japanese prisoner of war camps being too exhausted for anything but limited garrison duty), Leclerc cleared an area of about 70,000 square miles. The Vietminh dissolved its "divisions" and "regiments" in the south and returned to guerrilla warfare. The French had won the first round.

It would be useless to go into the details of the political squabbles that finally brought about the complete breakdown of negotiations between the French and Ho Chi Minh's revolutionary government, still solidly entrenched in the north under the protective wing of the Kuomintang generals. It is quite obvious that they were conducted in a spirit of mutual bad faith and incomprehension, not to speak of the various factors of the cold war that began to play their part in the matter.

Nonetheless, the Vietminh agreed to let French troops land peacefully in Hanoi and to place small garrisons of between 500 to 850 men in several important border posts. However, multiple incidents

between French and Vietnamese as well as Kuomintang troops created an extremely tense atmosphere which eventually became so explosive that one spark was all that was needed to bring about a general conflagration. The case in point was a matter involving a Chinese junk which the French customs guards had impounded because it assertedly had carried illegal arms for the Vietminh. Road blocks were erected by the Vietminh in Haiphong and when a French bulldozer crew, detailed to remove the block, was attacked, the French, in turn, shelled the city. A few days later, on 19 December 1946, the Vietminh attacked French installations throughout Indochina in a supreme effort to sweep the French into the sea. The "seven-year war" between France and the Vietminh had begun.

The War Situation

At the outset, the position of the French seemed desperate. Hampered by thousands of European and Eurasian civilians and 14,000 miles from its supply bases, the bulk of General Leclerc's mobile troops was bottled up in many small garrisons thinly spread over an area of jungle forests and steep mountains which was four times the size of Korea. General Leclerc's principal assets were massed firepower and air transport. It was the judicious use of both that saved Leclerc's troops from annihilation. The armored brigades swiftly swept a path from Hanoi to Haiphong; paratroopers and light bombers relieved the pressure from the small garrisons—some of which, such as Nam Dinh, were besieged for 4 months. Soon, most of the Red River Delta and Upper Tonkin, including the key cities of Lao Kay, Cao Bang, and Lang Son, were under French control.

The French troops, however, were already too weakened by the recent attacks and their overextended communications lines to be able to dislodge Ho Chi Minh from his mountain strongholds. The situation slowly degenerated into a stalemate.

For the Vietminh, the stalemate proved to be a welcome respite. The guerrillas were reorganized on a battalion basis, officer training schools were established, and the eventual victory of Mao Tse-tung over Chiang Kai-shek on the Chinese mainland brought about a welcome flow of ammunition, equipment, and instructors. Soon, General Valluy, the new French commander after Leclerc's departure and death, was now faced with 30 regular Vietminh battalions under the command of Vo Nguyen Giap, while in the south, guerrilla units under Nguyen Binh cut off Saigon from the hinterland and occupied the Transbassac—Indochina's rice bowl.

Despite the dangerous overextension of their lines in view of the number of troops available, the French persisted in maintaining their line of outposts along the Chinese border (see Figure 1), in spite of the advice of General Revers, then Inspector-General of the French Armed Forces, to concentrate French forces around the vital urban and rice areas. General Revers had advocated this line of action as early as the middle of 1949, when it became apparent that the Chinese Communists would soon reach the confines of Indochina.

Giap's troops attacked in the fall of 1950, when atmospheric conditions all but nullified French air power. The French, at this time, under General Carpentier, desperately attempted to disengage their outlying garrisons by sacrificing some of their smaller posts. Nevertheless, the destruction of the forts of Lao Kay and Cao Bang—with nearly all their troops—were real disasters and French morale reached its lowest ebb.

In France, in view of the lengthening casualty lists, the public clamored for a recall of the French Expeditionary Forces and all available ships were directed to Indochina to evacuate the 20,000 to 30,000

French civilians who remained there. On the other side, Ho Chi Minh's radio announced that he would enter Hanoi, his former "capital," on the fourth anniversary of the beginning of the war, 19 December 1950. It was then that France decided to send General Jean de Lattre de Tassigny, her best combat commander, to Indochina.

It is a controversial matter whether the sudden change for the better was the result of the new commander's presence or was the result of a crucial error in the tactics of the Vietminh—to operate in the plains where the French flat-trajectory weapons and armor could be brought into full play. Still, the fact remains that De Lattre smashed the Vietminh attempt to break through to Hanoi via Vinh Yen on 18 January 1951, and the follow-up attempts to capture the vital port of Haiphong, North Vietnam's "iron lung"; while a third successful battle, on the Day River, assured the French of the control of the northern rice bowl.

In the meantime smaller but strong commando groups and French marine units had broken open the main communication bottlenecks in the south around Saigon and French naval and air units in turn blockaded the Transbassac so that the Vietminh could not harvest its rice to trade on the black markets of Singapore. Cambodia and Laos, with the exception of a few guerrilla areas, were entirely in French hands. A more resolute French policy at home and stepped-up American aid increased the strength of the French Expeditionary Force to about 250,000 men. Under the guidance of De Lattre, Vietnam began to recruit and train its own armed forces, which soon reached a total strength of about 130,000 men. Another of De Lattre's achievements was the construction of a fortified line of bunkers and concrete emplacements, supplemented by centrally located heavy and medium artillery positions, covering the entire vital northern Delta. Using this fortified Delta as a base for future offensive operations, De Lattre executed several deep stabs into Vietminh positions, using paratroopers and armored units.

On the other side, Ho Chi Minh's Vietminh underwent one of its most severe command crises. Giap's position, for a time, seemed severely shaken, and there were even rumors that Ho Chi Minh had been relegated to the background. The truth of the matter seems to be that he was following the three basic principles for Communist warfare in Asia as laid down by Mao Tse-tung, which were:

1. Yield any town or terrain you cannot hold safely.

2. Limit yourself to guerrilla warfare as long as the enemy has numerical superiority and better weapons.

3. Organize regular units and pass over to the general counteroffensive only when you are sure of the final victory.

The Vietminh high command had mistakenly underestimated French capabilities and passed from step 2 to step 3, with disastrous results. Since a scapegoat had to be found, it was found in the person of Nguyen Binh, the Vietminh commander in the south, who had been an ardent advocate of the general counteroffensive. Nguyen Binh was ordered north to Giap's headquarters—a 1,200-mile march through the jungle—and was killed by a French Union patrol in Cambodia.

French Tactics—1952

On the French side, the army experienced a very serious loss when Marshal de Lattre died last year shortly after his only son had been killed in action in Indochina. General Salan, who took command as acting Commander in Chief, French Expeditionary Forces, Extreme Orient, apparently let the initiative slip back into the hands of the Vietminh—a most dangerous situation, the more so in view of the existence of a fortified line behind which


The War In Indochina
RED CHINA
N
LAI CHAU
LAO KAY
CAO BANG
PHONG SALY
RED RIVER
BLACK RIVER
NA SAN
LANG SON
TONKIN
HON GAY
HANOI
HAIPHONG
LUANG PRABANG
NAM DINH
NINH BINH
XIENG KHOUANG
VIETNAM
HAINAN
VIENTIANE
VINH
L
A
South
ANNAM
China
THAILAND
O
HUE
TOURANE
16°
16°
Sea
S
MEKONG RIVER
QUI NHON
C A M B O D I A
BAN ME THUOT
COCHIN CHINA
NHA TRANG
PHNOM PENH
DALAT
SAIGON
Gulf Of Siam
Legend
VIETNAM CONTROLLED JANUARY 1950
VIETNAM CONTROLLED JUNE 1952
LOST BY VIETNAM JUNE 1952
FRENCH-HELD STRONG POINTS

FIGURE 1.

French Union Forces could be lulled into a state of complacency. It cannot be denied that a certain "Maginot Line" or "wall psychology" spirit had developed in the French High Command. More than 10,000 forts, bunkers, and concrete emplacements, totaling more than five million tons of concrete, were built in and around the delta. The whole tactical concept was built around the theme of *hold that line.*

One other result of the "wall" tactics was the holding of nearly half a dozen isolated fortresses far behind Vietminh lines, some as far as 300 miles inside Communist territory. Most of those fortresses appeared in the fall of 1952, when Vietminh elements—realizing that the Delta was too well defended to be attacked through a general counteroffensive—turned towards the elimination of the remaining French

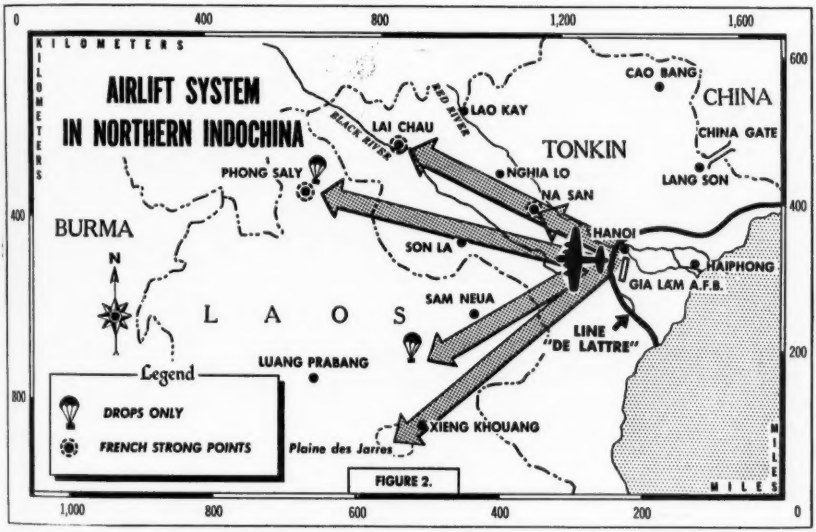
Successful fighting in North Vietnam assured the French control of the northern rice bowl. Above, French Union troops fighting in Laos.—French Information Services photo.

Costly battles were fought for the possession of these forts, while their occupation —at one squad per fort, and many have company strength—immobilized at from 120,000 to 140,000 troops. And by no means do those forts prevent the infiltration of Vietminh elements! Battles involving nearly a whole Vietminh division were fought last year well within the fortified line and conservative intelligence estimates place the number of Vietminh troops operating within the delta at around 30,000 men.

posts in northwestern Vietnam. Offensives were launched in the plateau area between the Red and Black Rivers, with the resulting destruction of the French garrisons at Son La and Nghia Lo. Na San, a third post, however, was fortified swiftly and provided with an airfield capable of supporting *C-47s.* As a result, about 12,000 troops with their vehicles, pack animals, and 105-mm howitzers had been airlifted into the stronghold within a short time. The ensuing Vietminh attacks were met by the withering fire of the defenders, and

Na San still holds out. The same applies to Lai Chau, near the Chinese border, to Phong Saly in northern Laos and to several smaller points. In short, the French Far Eastern Air Force constantly maintains at least three to four airlifts (see Figure 2) over distances from 120 to 400 miles inside enemy territory, not to speak of tactical airlifts to front-line troops operating in Laos. During the Na San offensive, for example, the freight turnover between Hanoi's Gia Lam airport and Na San was higher than that on Europe's biggest airport, Orly Field. It is clear that such operations are prohibitive both from the point of view of equipment as well as from that of financial expenditure. The tactical value of having about 20,000 to 30,000 excellent troops bottled up hundreds of miles behind enemy lines in the jungle cannot be justified readily. Dispersed as they are, these troops cannot operate deep break-throughs or sorties into enemy supply lines—which, by the way, have long since been using bypass routes far around the French hedgehogs. Yet these troops are a serious liability to the French supply services particularly during the rainy seasons, and would be a most welcome tactical reserve against Communist infiltrations on the main fronts. Their value in the case of a highly problematic Franco-Vietnamese general counteroffensive could hardly justify their maintenance indefinitely.

On the other hand, by mounting an attack against Laos, the Vietminh command gave proof of a versatility and imagination which the opposing command has yet to show. Having realized that the major objective in the north, the Red River Delta, was too tough a nut to crack with the presently-available forces, the Vietminh command veered off at a 90 degree angle to the west and invaded thinly-populated Laos—one and a half million population spread over a territory twice the size of Pennsylvania—which was held by a force of about 15,000 Laotians and a few battalions of French troops. Within a few weeks, most of northern Laos was overrun and the French Union forces around Luang-Pra-

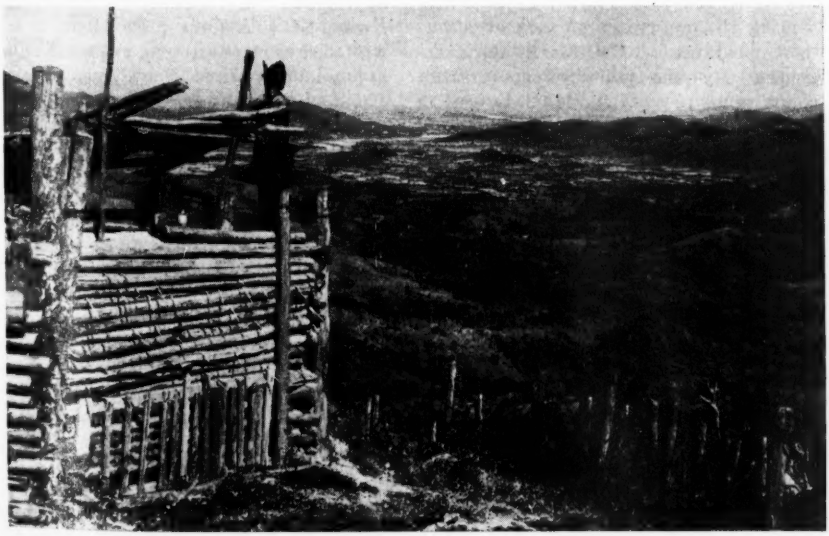


bang and Vientiane were fighting for their lives. Again, the French Air Force came to the rescue and a hedgehog was set up in the Plaine des Jarres—and was promptly bypassed by the Vietminh forces which soon made their appearance within a few miles of the Thailand border. As suddenly as it had begun, the Vietminh tide then began to recede. There was no panic or air of defeat over the withdrawal. It was an orderly retreat toward their nearly impregnable jungle positions to the north.

The French have high hopes for the new Vietnamese Army. Above, the future cadres for new Vietnam commando battalions standing in formation at the NCO school in Quang Yen.

Reports that the Vietminh attack had been a failure since it fell short of capturing the main urban centers will need additional substantiation. The fact remains that the French High Command was forced—and still is—to withdraw badly-needed troops hurriedly from other points in Indochina in order to protect Laos, and that, from now on, it will have to leave important garrisons in various Laotian key areas in order to forestall a repetition of such an invasion. In other words, by establishing a *second front* in Laos, the Vietminh command considerably softened certain other of his main objectives, and the increased rate of attacks against the Red River Delta—which began a few days after the Vietminh withdrawal from Laos seems to bear out that contention.

Of course, it is true that the Vietminh, while on the attack, is faced with a tremendous supply problem. A former Vietminh quartermaster officer told the writer that, for the Nghia Lo operation alone, a large number of coolies—men, women, and children—were used to carry the supplies for the attack force. One can imagine the hordes of supply carriers who were needed to launch the Laos offensive which, after all, was mounted by at least three Vietminh divisions of about 10,000 men each. Because of the moun-



The French troops in Indochina are stationed at many small garrisons which are spread over an area of jungle forest and steep mountains four times the size of Korea. Above, French defensive positions being built near An Khe in Indochina. Below, a French fortified observation post east of An Khe.—French Embassy Information Division photos.

tainous terrain, no coolie can carry more than about 60 pounds for over 15 miles per day. On the other hand, he also has to carry his own sustenance (about 2 pounds of rice per day). Therefore, any large-scale operation far from the original Vietminh bases—such as the Laos offensive—implies the establishment of several intermediary supply depots and a huge expenditure of scarce rice for the transport of a ridiculously small "payload." Trucks are available in limited numbers but can only circulate during the night in view of French air superiority. It is obvious, therefore, that, in view of the lesson learned during the general counteroffensive of 1951, the Vietminh High Command will probably avoid a final showdown with the French Union Forces until such times as its Chinese Communist ally will be able to divert enough heavy equipment to fulfill Mao Tse-tung's theory of pass to the general counteroffensive only when you are sure of the final victory.

The Outlook

As the situation stands at present—barring the occurrence of such events as the appearance of *MiG-15s* in the Indochinese sky—the military aspect there points to a stalemate similar to the one in Korea. Although slightly superior in numbers and far superior in heavy equipment, the French Union Forces seem compelled to divert the bulk of their manpower to the defense of highly vulnerable communications lines, where the Vietminh is at liberty to attack at any of the three main and several secondary fronts that exist throughout Indochina. Hopes are high that the arrival of General Henri Navarre the new Commander in Chief, French Expeditionary Forces, Extreme Orient, and of General Cogny, the new Commanding General, North Vietnam—who commanded one of the hardest-hitting combat teams during the last offensives under De Lattre—will bring a "new spirit" to French tactics and get the bulk of the forces out of the bunkers. It appears that the new commander in chief might advocate the methods used by General Merrill and General Wingate during the Burma Campaign—units *without* surface communications lines operating deep behind enemy lines, resupplied by air. This would exploit to the utmost the basic French superiority in mobility in supply and firepower and would also transfer the initiative to the French.

The establishment of 54 commando-type Vietnamese battalions who are familiar with both the language and the terrain, also should contribute greatly to the eventual success of such a method of fighting.

There are those who—mindful of General MacArthur's ill-fated Yalu River campaign—fear that too much pressure against the Vietminh might bring about the appearance of several hundred thousand Chinese troops on the Indochinese battlefields. This is within the realm of possibility, however, a glance at the map of South China will indicate that such a mass appearance is unlikely—Yunnan and Kwang-Si, with their rugged terrain and wretched communications, are not like the highly-industrialized Manchurian Plains. The Soviet Union's and Red China's industrial centers are nearly 3,000 miles away, so that, for once it would be the Communists who would have to struggle with a most severe problem of logistics. On the other hand, it is obvious that a Communist jet air force with a Red Chinese sanctuary would provide a nearly insuperable problem to the French. The air "infrastructure" of Indochina, already severely taxed by the various airlifts, is far from satisfactory, and the number of airfields capable of accommodating jets now is desperately small.

In the meantime, the 7 years of war in Indochina presents an ever increasing burden to French finances. Human losses have been heavy—43,000 dead, 40 per-

cent of these casualties were regular French officers and noncommissioned officers who are sorely needed for the infrastructure of the new French North Atlantic Treaty divisions.

There are high hopes for the new Vietnamese Army, under General Nguyen Van Hinh. Vietnamese units have in the past given a good account of themselves and now number seven divisions. About 30 of the 54 planned commando-battalions are expected to be ready by the fall of 1953. Nevertheless, there is little hope that an appreciable number of French troops could be withdrawn from the murderous climate of the jungle battle lines in the near future. Nor is there hope that these units, now badly needed in North Africa or France, can be withdrawn. Like Korea, there seems to be no *substitute for victory* in Indochina. Or, as a French civilian official here put it: "How do you think it feels to fight alone for 7 years a war that is militarily hopeless, politically a dead-end street, and economically ruinous?"

Conclusions

1. Contrary to general expectations, there are only a few general lessons that can be drawn from the Indochina conflict. It cannot be considered a modern war since one of the opponents is entirely devoid of armor and air power. Both parties, however, do make considerable use of modern light armament, so that one could call the Indochinese war an *old-type war with modern weapons.*

2. A great deal of rigidity in tactical thinking has been displayed by the French High Command. Add to this the fact that the French forces have used heavy tanks and artillery, which were designed for use on the firm soils and open plains of Western Europe, in rice paddies and jungle terrain.

3. More than heavy weapons and new concrete pillboxes, the situation in Indochina requires the kind of "offensive spirit" so remarkably displayed by Leclerc and De Lattre with much smaller and poorer-equipped forces than those now at the disposal of the French High Command. No war, and particularly no guerrilla war, can be won by remaining on the defensive. The French will have to adopt Mao Tse-tung's advice and fight the war, with hit-and-run stabs.

At the present time, the entire French order of battle appears to be based on the hopeful assumption that the opposing side will *never* receive an air force or armor for it is quite obvious that under the present conditions no airlift of any consequence could be maintained in the face of enemy fighter opposition. Already the hitherto invulnerable concrete bunkers are victims of the enemy's new recoilless guns and shaped charges and increasing enemy efficiency has to be expected and reckoned with.

The future alone will show whether the recent reorganization of the French High Command in Indochina has brought about this change of spirit.

World War II gave us a clear picture of a new concept of war—total war. War that spares no man, woman, or child in its scope of operations, and which demands the active participation of whole societies, rather than just the members of the armed forces.

Brigadier General Charles E. Loucks

HIGH POLISH ON THE HIGH BRASS

George Fielding Eliot

This article is reprinted from AMERICAN MERCURY, June 1953. The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THIS was in that grim autumn of 1939. War had come again to Europe. It might come to America too. I sat in an old-fashioned office in the State, War, and Navy Building talking with the new Chief of Staff of the Army, General George C. Marshall.

"If we're drawn into this war," said Marshall in his sober way, "we mustn't be caught unprepared. The great thing is leadership—competent leadership at the very start, so that the lives of our young soldiers won't be thrown away while we sort out good generals from bad ones, as Lincoln had to do. Trouble is, the general officers of the line who are on the active list today are almost too old to stand up to the stress of modern war—and this may well be a long war. Last time we had Pershing—and we fought only a little over 3 months altogether. This time—well, I've spent some sleepless nights thinking about what I'd say if the day comes when the President sends for me and says: 'Marshall, to whose charge shall we commit the lives of a couple of million American kids on the battlefield?' So I've made a little list."

He reached into a desk drawer, took out a slip of paper, and looked at me keenly.

"You're not to publish this now, Eliot," he warned. I nodded, and he handed me the slip.

Most of the names on it I knew either slightly, or not at all. The world has heard a good many of those names since: Eisenhower, Bradley, Hodges, Patton, Clark, Simpson, Devers, Smith, Eichelberger, Patch, Truscott, Collins, and quite a few more.

"These are colonels and lieutenant colonels," said Marshall, "whom I've picked out for some special attention: what you might call a course of sprouts. I've picked them either on my own judgment of each individual, or on the recommendation of others in whose judgment I have confidence. I'm going to test these men. I'm going to give them the toughest jobs I can find, pile burdens on them until they sweat. Then I'm going to shift them suddenly to new positions of even greater responsibility. I'm going to allow them to think that I'm treating them arbitrarily, even harshly; asking more of them than should be asked of mortal men. In that way, with the maneuvers to help in forming an opinion, I'm going to find out as well as is possible short of the test of actual war, whether these men are fit to command American soldiers in the field. Some will fall by the wayside." (Some did —*those* names I have not mentioned.) "But," the Chief of Staff continued, "Those who come through will be army and corps and division commanders if we have to fight. I want to know now who the good men are, so that the country won't have to pay in blood to find out later on."

The result of Marshall's course of sprouts is written in the history of the years 1942-45—in North Africa, Italy, and Western Europe, in the Pacific Islands, Leyte, Luzon, and Okinawa. The best-commanded army the United States has

ever put into the field went on from one victory to another in unbroken succession. The victories were not bloodless. However, there were no Bull Runs, no Chickamaugas, no Fredericksburgs. That was because there were no McDowells, no Rosecranses, no Burnsides in command. The mothers of this nation owe a notable debt of gratitude to George C. Marshall.

How different was the situation in 1861, when Lincoln sent Secretary Seward to ask the aging Winfield Scott for advice as to commanders!

The old soldier's answer was grim:

"There are few officers who have commanded even a brigade in the field, Mr. Secretary. There is good material in the Army, but the South has taken most of those holding the higher grades—notably Robert Lee and the two Johnstons. We have captains and lieutenants who, with the time and experience, will develop and do good service." He might have added that time and experience are wartime's most expensive commodities.

The profession of arms has had an honorable place in our history ever since Washington first assumed command of the Continental Army before the lines of Boston. However, only in recent years has that honored profession been adequately developed and supported by the nation, though it has always been expected to perform miracles in the hour of sudden need.

"The rank of men," wrote Light Horse Harry Lee in the bitterness of poverty and exile, "as established by the concurrent judgment of the ages stands thus: heroes, legislators, orators, and poets. . . . Generally, mankind admire most the hero; of all, the most useless, except when the safety of a nation demands his saving arm." Since our safety as a nation has been called in question only intermittently, we have had only intermittent employment for heroes, and our devotion to utilitarian concepts has tended toward a harsh judgment of the value of the military profession during the long intervals of peace when we comforted ourselves with the thought that "it" could not happen again.

The profession of arms is neither easily nor cheaply maintained in peacetime. It cannot be practiced, as can medicine or law or engineering. Yet the highest level of competence, as in all professions, comes from experience and the gradual assumption of ever increasing responsibility. The education of a professional man who is worth his salt does not cease when he receives his diploma, whether from West Point or from Harvard Law School. Indeed it never ceases. The lawyer or the doctor or the engineer learns, however, in large part from *doing*. The army officer can "do" only partially: he learns from training, from the command of troops in garrison and on maneuvers, and from the example and precepts of his seniors. In part, his progress must depend on constant renewal of the educational process. Navy and air force officers are somewhat more fortunate. The very existence and operation of ships and airplanes demand a certain degree of training and impose certain hazards which—while not equivalent to the hazards of combat—nevertheless in themselves demand the attainment of professional competence in ever increasing degree.

We may take pride in the fact that our generation has seen the rise of the American profession of arms to meet its vast responsibilities and to assume its new and rightful status in the life and fabric of nations

However, in every branch of the armed services, there must be some means for the determination of superior ability, and these means must—in the nature of things—be to some extent artificial. The engineer,

the doctor, or the lawyer who does bad work is quickly and mercilessly judged by results which are apparent to everybody. The military officer in peacetime must be judged within his profession, by its own self-established standards, which are influenced only slightly, if at all, by any intrusion of nonprofessional criticism. It is not enough that his men turn out smartly on parade, or that his ship's brightwork gleams like gold in the morning sun, or that the airplanes of his squadron should fly in perfect formation. The ability to command men, and to gain their confidence and even devotion, is of great importance; but so is acquaintance with the constantly evolving theory of his profession—and that he can gain, and renew from time to time, only by a well-considered process of education.

Selection

If a sound process of selection for high command is to be established, these things are necessary:

1. A general staff, or its equivalent, to establish and renovate continuously a body of military doctrine adapted to the needs of the nation and to the probable conditions under which the armed forces may be employed.

2. A system of higher military education designed to prepare selected officers for the duties of higher command and staff appointments. Assignments within this educational system should be made at intervals in the officers' careers in accordance with their accumulative experience and competence.

3. Regular armed forces sufficient in quantity and quality to provide for the practical exercise of leadership and the development of training and of weapons techniques.

During the greater part of our history we have had none of these three requisites. Consequently our choice of military leaders has depended in large part upon the element of luck. Our luck has not always been good, and we have paid for bad luck in the costliest of coin—the wasted blood of our youth.

Past Lessons

In examining the lessons of the past, we tend to concentrate our attention on the commanders in chief: thus we think of command in the Civil War in terms of Lincoln's long search for a top general, culminating in the choice of Grant after many vicissitudes, as against Davis' fortunate selection of Lee at the outset. Yet it is likely that the failures of Union corps and division commanders, of which there were many, were in sum total quite as costly in blood as the errors of Pope and Burnside and Hooker; while if Davis did well in the elevation of Lee to the command of the Army of Northern Virginia, his devotion to Bragg and his petty dislike of Joe Johnston were far from helpful to the Confederate arms in other theaters of war. He did not appoint Lee to be his commander in chief until it was too late for that great soldier to rescue the lost cause.

The Union armies at the close of the war were armies commanded by a corps of officers who had proved their competence on the battlefield—at the price of blood. They were not only the armies of Grant and Sherman and Thomas, who held the chief commands: they were the armies also of Sheridan and Meade, of Howard and

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Slocum and Schofield; of corps commanders like Humphreys, Warren, Hancock, Gibbon, Ord, Terry, Wood, Wilson, and A. J. Smith; of division commanders such as Miles, Griffin, Wheaton, Seymour, Willcox, Crook, Custer, Baird, Ruger, and Garrard.

No Yardstick

Many, many incompetents and blunderers had fallen by the bloody 4-year wayside as these officers and others like them worked their way up to their well-won stars. Yet how was Lincoln, or his Secretary of War, to choose more wisely at the beginning? He had no yardstick of military competence to help him. The military competence was there—as Scott said—but how could the wheat be winnowed from the chaff? With the tiny regular Army scattered in little one- and two-company posts, there was little means for judging the abilities of junior officers for high command. Albert Sidney Johnston remarked sadly on this point: "My officers know everything there is to know about commanding 50 dragoons in the field, and nothing whatever about anything else."

The Navy in the Civil War was better off—largely because the command of a steam frigate even in peacetime affords a far better yardstick for measuring military competence than does the command of 50 dragoons at some wretched outpost. A lot of ancient fossils had recently been eliminated from the Navy List, making way for the new Academy-educated officers; and finally—and not least—the Navy had an able Secretary in Gideon Welles and what amounted to a professional chief of staff in his Assistant Secretary, Gustavus V. Fox, who had been a naval officer for 18 years. These were notable advantages. The good men were known, were brought promptly to the front, and stayed there: Farragut, Porter, Goldsborough, Dupont, Foote, and their colleagues. They in turn chose competent subordinate commanders. The results are written in our history under the names of Mobile, New Orleans, Fort Fisher, the opening of the Mississippi, and above all, the terrible iron blockade that strangled the Confederacy into submission.

There was material for some constructive thinking in all this. Some was done—but not applied. The tumult and the shouting died. The Army reverted to the 50-dragoon system. And 33 years after Appomattox, the Spanish War found us again fumbling for leaders of troops among the few aging officers still available who had commanded divisions or brigades in the Civil War. They pulled us through—Shafter, Merritt, Otis, Miles—with the help of the Navy, which was by this time actually studying the theory of war, having established a War College in 1881. We moved into the West Indies and to the Philippines, and being fortunate in the coming of Theodore Roosevelt to the White House, began to look outward to wider horizons.

Elihu Root—whose name should never be forgotten—became Secretary of War and insisted, against last-ditch opposition from the military conservatives, on the creation of a General Staff and an Army War College. The effect was tremendous, though of course slow to develop. Its full meaning was not perceived until 1917—when for the first time in all our history we were able to commit to battle an army with a competent commander, a competent staff, and a group of competent corps and division generals as well, all in one package. This achievement—not perfect in all respects by any means, but far beyond any previous attainment—was the direct result of the wider outlook, the improved professional training, and the opportunity to weigh and judge military competence in time of peace beyond the limits of "commanding 50 dragoons" which the General Staff and the War colleges afforded. Wilson could choose more wisely than Lincoln because he had not only a larger reservoir of professional ability to choose from, but

because standards and measuring sticks had been created which enabled him and his advisers to make the right choice without paying for it in the lives of young soldiers. To this measuring process, of course, the campaigns in Cuba, China, and the Philippines contributed to some extent. Yet it should be observed that Pershing himself had never commanded more than 10,000 men (in the Mexican imbroglio of 1916).

Post War Cut-back

After World War I came the usual cut-back—but not all the way back, as after the Civil War. The Army was reduced, but at least we kept enough of it so that it could still have its measuring sticks and its opportunities. Promotion by seniority once more laid its heavy hand on the officers' list. However, the educational system expanded: the Command and General Staff College at Leavenworth came into its own, as a preliminary step to the War College, and the schools of the various arms became more and more efficient. The senior commanders of World War I passed in steady procession to retirement. Their places were filled by those who had commanded regiments and battalions, or served as senior staff officers. World War II came upon us while many of this younger breed were still with us. Above all, there was time to do some winnowing and picking—2 years and more from September 1939 to Pearl Harbor. It was time which George Marshall made good use of, for his course of sprouts and its all but miraculous results.

Those results were even better than in World War I, if you survey the whole area of high command from the division on up the line, and if you consider that this army had to fight for 2½ years of unremitting battle instead of 3½ months. Not a single army or army group commander had to be relieved for failing to measure up to the highest standards of his profession, and very few general officers at subordinate levels suffered this fate. The commanders who began the war fought it through to victory. Most of them were the product of Marshall's testing program: the great exception was MacArthur, who came back from the retired list to win new laurels.

Navy Education

The Navy, facing its greatest responsibility, produced its usual capable job. Its educational system had grown, too: but as in the past, its great school was afloat. The fleet had remained "in-being" between the two world wars. The battleships, carriers, cruisers, destroyers, submarines, and aircraft existed and operated and constantly were at their exercises. Nimitz and King, Halsey, Spruance, Turner, Hewitt, Kinkaid, Mitscher, and the rest were the legitimate heirs of the frigate captains of 1812—they had learned the art of command by commanding, they had learned to bear responsibility by bearing it in an exacting service where those who failed were weeded out before they could endanger others. Fleet Admiral Leahy, himself too old for sea command, did not—like Scott in 1861—have to hesitate and rack his brain when asked for his recommendations by the President. His choice was almost automatic. Indeed the Navy already had made that choice for him. The men who were fitted for the highest responsibilities were known, as they had been known in 1861—to the Navy. The sea is a stern mistress.

This war, too, saw an astonishing development and expansion of the Marine Corps, which from being a mere auxiliary of the Navy or a small brother of the Army (as in 1917-18) came into its own as the teacher and leader of amphibious operations. Before the war ended, no less than five divisions of Marines were in active service: such a thing as a Marine division had never before fought in any of our wars. The ability of the Corps to produce

officers capable of exercising such commands was fully established: though not, of course, without some growing pains.

However, there was another new and vitally important factor which had hardly impinged upon the problems of high command in World War I—the air. In the earlier war, airplanes had been a useful means of reconnaissance and artillery observation. The independent employment of air power on true air power missions had scarcely been begun when the war ended. Ever since 1918, the Army Air Forces had been struggling for recognition as a new "third service," co-equal with the Army and Navy. Conservative military opinion had stoutly resisted this idea. The Navy (and the Marine Corps) had made their own air forces an integral part of their tactical and administrative structure. However, the Army Air Forces, from which the great United States Air Force of today was to grow, was in embryo in 1939. There were spirit and enthusiasm to burn. There were no proved commanders of large air formations, and the study of air warfare rested largely upon theory plus the rudimentary experience of World War I. The first attempt at any kind of central air command was the creation of the General Headquarters Air Force under General Andrews in 1935. When war came in Europe and the might of the *Luftwaffe* was exhibited to a shocked world, the Army Air Forces had just 1,300 officers and 18,000 men. On 1 January 1944, only 5 years later, the total was 2,385,000 officers and men. This mushroom growth of necessity involved the too-rapid promotion of many junior officers to the responsibilities of high command. Some cracked under the strain: the marvel is that so many came through to triumphant accomplishment.

Of course the Air Force had a great advantage, similar to the Navy's, in the very nature of its weapon. Men who lack stout hearts and steady nerves do not qualify as pilots, and in climbing from the control of one plane to the successive commands of a flight, a squadron, and a group, the burden of responsibility, the demands on judgment and clear thinking, grow heavier at each step, whether in peace or war. As in the Navy, the unfit are soon eliminated because they cannot be trusted with the lives of their aircrews and some millions of dollars' worth of public property as well.

Thus there was some basis for the choice of the best commanders, even under the conditions of far-too-rapid expansion. A cruel loss was suffered at the very outset by the death of Frank Andrews: but Arnold, Spaatz, Doolittle, Eaker, Vandenberg, Kenney, and their comrades carried on. The war itself was a great teacher: the system of schools which grew up under its necessities gave birth, when it ended, to the Air University with its War College and its Command and Staff School.

Joint Operations

Air power had come of age and taken its rightful place on the military team. It brought with it, however, problems other than its own growing pains: and the chief of these problems was that of unified command. Joint operations between sea and land forces had previously been the exception rather than the rule, and when necessary the shore-line had provided an easily recognizable line of demarcation. But now the air factor must be taken into account in all surface operations by land or sea. Moreover the increasing range of aircraft and the destructive qualities of atomic weapons give a new meaning to the concept of global war, enhanced by the development of the aircraft carrier.

The widening of our horizons, begun after 1898, had moreover by 1945 come to encompass the entire world. Peace and security could no longer be compartmentalized even on a hemispheric basis, much less a purely national one. The nation

whose youth had been taught to regard alliances as dangerous and "entangling" now became, of necessity, the leader of the greatest military alliance of history.

Our military leadership had to keep pace with these momentous changes of policy and of objective. We had to develop the capacity for joint commands, and beyond that the capacity for useful participation in allied commands. Upon the educational system of the three services, therefore, had to be superimposed the Armed Forces Staff College, for the study of joint operations, and the National War College, for training selected officers "for joint staff and command duties on the highest level in behalf of the national security." Both these institutions are attended by officers of all three of the armed forces, and the National War College also has a certain number of students from the State Department and other executive departments of the Government. These two institutions, begun during the late war and vastly broadened in scope since 1945, are pouring annually into the armed forces a flow of senior officers competent to deal with the problems of global and total war on the higher levels of responsibility. To this factor must be added (1) the experiences of two world wars, (2) the broadening effect of service in military missions scattered throughout the world, (3) the rotation of officers in occupation forces in Germany, Austria, Trieste, and Japan, (4) the participation of large elements of our armed forces, under the provisions of the North Atlantic Treaty, in European defense activities, (5) experience gained through the establishment of joint commands in Alaska, the Pacific, and the Caribbean, and finally (6) the Korean conflict.

There is little comparison in breadth of outlook, understanding of the tactics of arms other than his own, and readiness to assume a higher level of responsibility, between the American officer of today and his counterpart of the "50-dragoon era" of 1861, even in the most junior grades.

The Future

And what of the future? If we had to fight tomorrow, at least the choice of the senior commanders would not rest on the fading memory of an aged general, nor on chance, nor even on a penciled list of hopeful candidates in the desk of a Chief of Staff. As with the Navy long ago, the good men are now known by all the services. Moreover, most of them are proved already by the test of battle.

Army

Of the army and army group commanders of World War II, all have either retired or are about to retire. Only Clark remains on the active list and he retires in the near future. The corps commanders are passing now into retirement: Van Fleet and Eddy have recently retired, leaving commands in Korea and Germany, respectively; Joe Collins completed a distinguished tour as Chief of Staff of the Army just prior to his recent retirement; Ridgway, his successor, is still going strong but most of the others have passed along. It is the division commanders of World War II who are now coming to the front—Taylor, Bolte, Dahlquist, McAuliffe and many other seasoned, experienced officers with several years yet to serve before retirement catches up with them; to whom may be added those who have gained yet more recent battle honors in Korea. Behind them again are the host of brigadiers and colonels who commanded regiments or held high positions in World War II and in Korea as well. This is a really huge reservoir of experience. The leavening and capacity-measuring value of the National War College, and promotion by merit instead of by seniority, have also had the most beneficial effects on the competence of our Army seniors for the highest levels of command in war, as well as providing yardsticks by which wise

selections may be made—indeed, anticipated and planned for.

The Navy and the Air Force have both, of course, participated in the advantages of world-wide service, of Korean experience, and of the joint educational system. The Navy continues to maintain the fleet-in-being—in the Atlantic, the Pacific, the Mediterranean, and the Far East. Here as always lies its final measuring device, its ultimate school of admirals.

Navy

As with the Army, the great names of World War II have disappeared from the active list. The recent Chief of Naval Operations, Admiral Fechteler, commanded an amphibious task force in the Pacific; the commanders in chief (Carney, McCormich, Radford) held like commands or senior staff positions of commensurate responsibility. The rising generation of vice- and rear-admirals for the most part had similar war experience, or toward the bottom of the list had the command of large ships or of squadrons of smaller ones. The well-proved, self-testing process of selection for command at sea continues, and although it is not without its imperfections it must be judged by its results. It is a system which has not changed in its essential nature in the life of the Republic, though it has changed vastly in detail. It gave us Perry and MacDonough in 1812, and they saved us from defeat. It gave us Farragut and Porter in the 1860s.

It gave us Nimitz and King in the last war. It has never failed us in time of need. It is based on the simple fact that the perils of the sea (or, now, the air over the sea) at any times are such as to require in commanding officers much the same qualities as are required for command in war.

Air Force

The Air Force is getting over its growing pains. It too has its reservoir of war experience now, with Korean additions plus the Berlin Airlift. It has not suffered the loss of quite such a proportion of its wartime commanders as the Navy and Army; because of its swift expansion the average age of its senior officers was lower. The former Chief of Staff, General Vandenberg, commanded an air force in Europe; so did his deputy, now Air Force Chief of Staff, General Twining; most of the top commands are held by officers who commanded large formations (air forces or air commands) in World War II (Le May, Chidlaw, Cannon, Weyland, Kepner, Partridge). The average age is still pretty young compared with the other two services. General Norstad, commander of the NATO air forces in Europe at 48 is an outstanding example. However, the average length of experience in high command is rising rapidly. The concentration of the Air Force on gaining its present independent and co-equal status in our national military establishment has in the past produced a tendency to cocksureness and combativeness in council which the passing years and the joint colleges and commands are gradually eliminating.

No impartial observer could deny that the Air Force presents today a more serious high-command problem than do the two older services. But neither could such an observer question that to have accomplished as much as has in fact been accomplished in 18 years (from the first establishment of the General Headquarters Air Force) is little short of a miracle. Nor can it be doubted that the static resistance of the older services to allowing the Air Force its proper independent status after World War I is largely responsible for such remaining evidences of immaturity as may be noted here and there.

Competent Commanders

The chief command problem of today is not, as it was with Lincoln, the choice of competent commanders. By land, sea, and air, we have them in plenty for the highest

and for the principal subordinate commands. The good men are known in all three services: we need have little fear that the blood of our youth will again be wasted by incompetent star-wearers. However, at the highest level, we have not yet found the best means of adjusting the concepts of global and total war and the responsibilities of leadership in a great alliance to our constitutional requirement for the control of the military by the civil power. The Joint Chiefs of Staff have not been brought into a smooth-running relationship to the civilian authorities of the Department of Defense. Nor have interservice rivalries from limited appropriations been entirely eliminated as a factor in Joint Chiefs' of Staff decisions. The answer, is not, in this writer's judgment, the easy and quick one of appointing a super chief of staff. It is an answer which must be sought patiently and prayerfully, perhaps for many years and through many vicissitudes.

The same may be said of our interallied military relationships. The fact that they work at all is something. History warns that there is no trickier task for statesman or for soldier than keeping together a military alliance of sovereign states: in peace or in war.

But that is "another story."

We may at least take pride in the fact that our generation has seen the rise of the American profession of arms to meet its new and vast responsibilities and to assume its new and rightful status in the life and fabric of the nation. If we have to fight again, we have the leaders who can handle the job.

We must be prepared to meet and beat Communist aggression whether it comes tomorrow or years from tomorrow, guarding, the meanwhile, against our traditional tendency to rush from pessimism to jubilant optimism, or the reverse, over the result of a single newspaper headline or even the outcome of a single battle.

The mobilization by which we can offset the threat will be a long drawn out and intricately planned business. The longer it continues, the more severe will be the test of the character of the men and the nation it involves.

Major General Floyd L. Parks

We must eliminate waste and duplication of effort in the armed services. We must realize clearly that size alone is not sufficient. The biggest force is not necessarily the best force—and we want the best. We must not let traditions or habits of the past stand in the way of developing an efficient military force. All members of our forces must be ever mindful that they serve under a single flag and for a single cause. We must effectively integrate our armament programs and plan them in such careful relation to our industrial facilities that we assure the best use of our manpower and our materials.

President Dwight D. Eisenhower

AIRBORNE ASSAULT BY AN INFANTRY DIVISION

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THE purpose of this article is two-fold: first, to examine the feasibility of a concept which envisions the conduct of airborne assault operations employing the infantry division delivered to the objective area by helicopter, and, second, to consider some of the advantages which accrue to the field army which has the capability of launching limited-objective airborne operations employing standard infantry forces and transportation organic to the Army.

Current United States airborne doctrine calls for the seizure and defense of an airhead by airborne specialists delivered initially by parachute and followed by air-landed elements in assault aircraft which land on protected landing zones. The success of the initial parachute assault is exploited by delivering air-landed reinforcements either by assault aircraft, or other cargo types, after adequate air strips have been prepared. The basis for this airborne doctrine is the versatility of the parachute as compared with the several other aerial delivery means, rather than the relative efficiency of the parachute.

It has long been recognized that parachute delivery of assault troops and their logistical support is less efficient and more expensive than air-landed delivery. The inefficiency of the parachute stems primarily from the dispersion and disorganization which occurs as a result of the landing of individuals and small packets of supplies and material by individual parachutes dropped from aircraft passing over the ground at speeds of approximately 120 miles an hour. The expense factor derives from the initial cost and high attrition rate of aerial delivery equipment; the damage to and loss of matériel and supplies resulting from parachute landing shocks, rough terrain, and dispersion; and the requirement for specially trained and equipped personnel to execute the operation plus the personnel casualties which occur as a result of parachute landing alone. Needless to say, the exponents of airborne assault stand ready to replace this means of delivery with any other means which offer an equal or better chance of accomplishing the mission.

Assault or cargo type fixed-wing aircraft available today do not provide the answer to the search for a means to replace the parachute. The air-landing of assault forces and their support by fixed-

The capability of launching limited-objective airborne operations using standard infantry forces and organic transportation will accrue to the type field army through the proper application of funds and foresight

wing aircraft offers certain advantages over the parachute. It permits the delivery of organized fighting teams to the objective area, thus minimizing dispersion and disorganization. It places this type of assault within the capabilities of standard type ground units with a modicum of special training in the techniques of air movement. Under certain conditions, airlanding also results in fewer personnel casualties and less damage or loss of equipment and supplies. However, airlanding by fixed-wing aircraft has certain disadvantages which militate against its employment in the initial airborne assault. Terrain requirements are much more restrictive for air-landing by conventional aircraft, or even gliders, than for parachute landings. Air columns of conventional aircraft or gliders which are to land in the objective area are longer, and the rate of build-up of forces in the objective area is slower than in the case of parachute delivery. Finally, aircraft which are orbiting and landing in the objective area are more vulnerable to enemy automatic weapons, mortar, and artillery fire than are parachutists during delivery and immediately after landing.

Employment of the standard infantry division in airborne assault by means of helicopter delivery is warranted *if* the helicopter is or can be developed into a suitable assault vehicle; *if* helicopters of appropriate capacities and in sufficient quantities are made available for this role; and *if* the infantry division can be adapted readily to this role with little additional training and with a minimum of modification to its equipment.

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Helicopter Capabilities

Is the helicopter a suitable vehicle for the delivery of assault forces to an objective in enemy-held territory? The Marine Corps was the first to recognize that rotary-wing aircraft might have such a capability, and has been the champion of the helicopter as an assault vehicle for the last 8 years. An examination of some of the capabilities of helicopters which are currently in service, or in an advanced stage of development, will disclose some of the factors which support the position of those who advocate an assault role for this type craft.

The relatively spectacular performance of helicopters has been brought into the public eye as a result of their wide employment in Korea, and in air-sea rescue work the world over. Light liaison types have received most of the attention since they are the only types which have until recently received service-wide employment. Helicopters which are capable of lifting 15 to 20 fully equipped men or about 2½ tons of equipment are in production. Developmental progress indicates that rotary-wing craft capable of lifting 40 men or equipment loads of from 6 or 8 tons can be put into production at an early date. Except for armored vehicles, certain other track-laying engineer vehicles, and heavy prime movers, the personnel and equipment which make up the combat power of the infantry division can be lifted by aircraft of such capabilities. As a matter of fact, these were the capabilities upon which the tables for loading the infantry division into troop carrier aircraft for air movement were based.

Even though the helicopter is granted the capability of lifting the essential loads of the infantry division, its fitness for the assault delivery role must be

measured by many other criteria. Some of these are: landing site requirements, sustained flight characteristics, weather and range minimums, and vulnerability to enemy action.

Landing Sites

It is said that wherever a man can stand, a helicopter can land. This is not entirely true, however, there is little doubt that areas suitable for the mass deliveries of parachutists and their heavy equipment —with acceptable landing losses—will permit the mass landings of helicopters. The ability of the cargo helicopter to carry equipment loads suspended below the fuselage, and its ability to lower personnel or equipment cargoes to the ground while hovering over terrain which precludes landing is another characteristic worthy of note. Thus, it can be seen that there will be areas where helicopters can deliver assault troops which are not suitable as parachute dropping zones. Such areas as narrow coastal plains or on estuaries cut by water or other obstacles; the tops of promontories or narrow ridges; towns, cities, or other built-up areas; and small clearings in the jungle or swamplands are examples.

Flight Characteristics

There are several flight characteristics which have a bearing on the suitability of the helicopter for an assault delivery role. The fact that it will fly at all frees its routes of obstacles, fixed defenses, and route maintenance. The fact that it flies so well; is so maneuverable in the air; and can fly straight-up, right, left, forward or backward, or hover at a standstill permits it to take advantage of defiladed approaches to the objective area, and thus avoid radar detection and much of the enemy's fire which could be brought to bear on the higher flying, less maneuverable, fixed-wing aircraft. Maneuverability also makes possible the mass formation flying which is essential to the rapid delivery of the largest number of troops in the shortest time. For this reason also, the craft can fly and deliver loads accurately under practically all conditions of visibility and in areas which are either intentionally or unintentionally screened by smoke and haze.

Weather and Range

The helicopter can fly and deliver loads safely in extremes of weather which would ground other aircraft. Moreover, the helicopter is not hampered by desert heat or arctic cold. Its cruising speed, while less than that of current fixed-wing aircraft, is still 10 times faster than road-bound transportation.

The limited range (approximately 100 miles), or radius of action (approximately 50 miles), places definite limits on the usefulness of this vehicle for airborne assault. Since there undoubtedly will be a requirement for mounting airborne assaults by forces of division size and larger at much greater distances than these, the employment of helicopter transportation for airborne assault will neither replace nor reduce the requirements for troop carrier aircraft, unless these limitations are overcome.

Vulnerability

The vulnerability of rotary-wing aircraft is approximately the same as for fixed-wing aircraft. Although the helicopter has less vital wing area than fixed-wing aircraft, it does have such vulnerable areas as transmission and rotor hub which are not found in conventional aircraft. In spite of its large size, low altitudes, and reduced flight speed, the helicopter has had an amazingly low degree of vulnerability to small-arms fire during extensive operations in Korea. Air superiority over the area of operations remains essential for mass flights of helicopters, just as for conventional cargo planes.

Cost and Availability

The high initial cost and limited availability are factors in considering the utilization of the helicopter as an assault force delivery vehicle. However, mass production of cargo helicopters with an 8-ton capability should result in favorable material cost and availability rate when compared with similar rates for current conventional medium cargo and assault aircraft. Certainly the cost is of such a magnitude that great care will of necessity have to be exercised to ensure that the full capabilities of these items are exploited, and that unnecessary risks and hazards are avoided. The same is true of all costly items of military equipment. The procurement and utilization of all such items should not be precluded on the basis of cost alone, but should be predicated upon necessity and the decisive advantages gained.

Modern Cavalry

In Korea, a reinforced company of Marines was landed by helicopter on an objective in sight of the enemy. In another operation, an infantry battalion was delivered by 160 sorties of 10-passenger helicopters to a position within mortar range of the enemy. In the United States, recent field tests have demonstrated the feasibility of mass helicopter landings in an objective area.

The impact of rotary-wing transport on field army operations may well correspond to that of the light cavalry and, later, the highly mobile armored formations. Certainly there seems to be a reasonable basis for concluding that the helicopter is a suitable vehicle for the delivery of assault forces to selected objectives in enemy-held territory.

Army helicopter requirements can be met by having the transportation organic or provided by the Air Force as required.

A recent memorandum of understanding between the Secretary of the Army and the Secretary of the Air Force removed the weight restrictions on Army rotary-wing aircraft. Functions were substituted as the paramount consideration in determining the performance characteristics of Army aircraft. The functions of Army aviation are to expedite and improve the conduct of ground combat within the ground combat zone. The primary justification for cargo helicopters of the capabilities discussed can be found in the added flexibility they provide the army commander in the logistical and tactical support field. Although it is in the field of logistics that the rotary-wing aircraft will be most commonly used, there will be instances when its capability will find application in the tactical area.

The helicopter has a range and radius of action which are well suited to the requirements of field army operations. It does not fill the bill for the Air Force. Therefore, there should be no controversy between the two services in this field.

The helicopter industry today is roughly at the same state of development as the fixed-wing aircraft industry of the 1920s. The fact that this much can be said is a tribute to the imagination and foresight of the United States Marine Corps, through whose efforts recognition of the tremendous tactical and logistical lift potential of this type craft was initially achieved.

Present Tooling

Because of present tooling the industry would be able to provide the required lift to the Army in the light- and medium-weight classes earlier, however, it appears that the procurement effort should be weighed in favor of the heavy (8-ton) helicopter at the earliest practicable time. This hypothesis is based on the acknowledged margin of efficiency and economy of operation of high capacity cargo carriers over smaller units. Furthermore, the 8-ton machine will lift an organized pla-

toon or such pieces of combat equipment as the 155-mm howitzer and 2½-ton truck, whereas the medium helicopter will lift neither of the above and the light helicopter will not lift any artillery or vehicle.

Since future helicopters may have about the same lift potential as troop carrier aircraft which are presently employed to drop the assault elements of the airborne division, a comparison of the airborne division organization and equipment with that of the infantry division should be of assistance in arriving at a conclusion regarding the helicopter mobility of the combat power of the infantry division.

The Airborne Division

The current airborne division organization is generally the same as that of the infantry division. The airborne division has a pathfinder platoon in its headquarters company, a parachute maintenance company, and an antitank platoon—none of these are found in the infantry division. The pathfinder platoon will soon disappear, as guidance to drop and landing zones has become an Air Force function. In all probability, the unique flight and delivery capabilities of the helicopter will permit accurate delivery of loads to landing areas without this type service. Obviously, there is no requirement for the parachute maintenance service. The antitank platoon is found not only at division, but also in the airborne infantry regiments, and compensates, to a degree, for the shortage of antitank means which exists in airborne operations where aircraft capabilities do not permit the delivery of tank units. This addition to the combat power of the assault elements of the airborne division should also be made available to the infantry division employed in an airborne assault role. This could be accomplished by making the weapons available and using personnel from the regimental and division tank companies to man them.

Organization

Other organizational and equipment differences include the following:

1. The airborne division engineer battalion has three combat engineer companies as compared with four for the infantry division.

2. The airborne infantry regiments have a support company including two platoons of four 4.2-inch mortars and the antitank platoon of six antitank guns as compared with the infantry regiment's heavy mortar company composed of three platoons of four 4.2-inch mortars.

3. The airborne division has two tank battalions of three tank companies each, whereas the infantry division has one tank battalion of three tank companies and one tank company organic to each infantry regiment.

4. The airborne division reconnaissance company is equipped with ¼-ton trucks entirely; whereas, the infantry division reconnaissance company has light tanks and other tracked vehicles.

5. The airborne division antiaircraft artillery battalion has three firing batteries equipped with towed, single barrel 40-mm guns and towed, quadruple mounted .50-caliber machine guns, whereas the infantry division antiaircraft artillery battalion has four batteries of self-propelled, twin 40-mm guns and quadruple mounted .50-caliber machine guns.

Equipment

The engineer, field artillery, and regimental mortar support organizational differences would affect the air-transportability requirements only in numbers, but not in types of aircraft. The difference in tank unit organization does not affect the airborne assault requirements of either division since neither can include them in the assault. Reconnaissance company equipment substitutions would present little problem.

The organizational and equipment dif-

ference which does seem to matter is the inability of the infantry division to transport any of the primary weapons of its self-propelled antiaircraft artillery battalion by helicopter. Here, as in the case of the antitank guns, there should be provisions made for substituting portable towed weapons for the self-propelled weapons when an infantry division is committed to an airborne assault operation.

To summarize, the infantry division should be able to deliver to the objective area by 8-ton helicopter the same relative combat power as the airborne division can deliver by parachute and assault aircraft, *if an equivalent number of antitank guns and towed antiaircraft artillery weapons are substituted for comparable nontransportable items.* This adaptation should not be difficult to make.

Training

Another consideration which falls under the heading of adaptability of the infantry division for helicopter transport is the special training required to gain the level of proficiency desired. Air movement training has been included in Army Field Forces training requirements for all elements and units of the type field army for the past 6 years. Training Memorandum Number 7, *Air Movement Training*, published by Office, Chief, Army Field Forces, dated 7 July 1952, is the current guide and lists the following objectives:

All elements and units of the type field army, capable of moving by air, will be trained in the principles and techniques of air movement, and be capable of moving by air transport by day or night, either in a combat role or an administrative movement. Upon landing, a unit will be prepared to enter combat immediately, or to move by marching, rail, or motor, with only that equipment which has been air-transported. Training will be conducted so as to accomplish the following:

(1) Familiarize appropriate staffs and commanders in the tactical and technical procedures of an air movement operation.

(2) Emphasize air and ground unit staff planning, air discipline, loading and unloading technique, and detailed actions of air-transported troops prior to take-off and after arrival in combat areas, and the organization of departure areas and airhead.

(3) Provide participating troops with practical experience in planning, preparing, and executing the various phases of an air-transported operation.

(4) Formulate and maintain up-to-date plans for air movement of all units.

(5) Develop Air Force-Army co-operation and co-ordination at all levels.

(6) Develop technique in the employment of the latest methods of resupply of a tactical unit by air.

No longer is a knowledge of the fundamentals and techniques of airborne operations confined to a limited number of specialists within this field. All service schools have been providing instruction in these operations for the past several years, and the base of knowledge and experience has been greatly extended.

Certainly our Army troops will have a greater understanding of air movement in any future conflict than they had of amphibious operations going into World War II. Yet during World War II, we find that Army troops participated in 58 of 61 of the amphibious operations on a regimental or larger scale, and that approximately 143 divisions were employed in these operations, of which 48 landed against opposition (the same divisions were employed in more than one operation).

It seems likely that future records may chronicle as numerous occurrences of infantry division participation in airborne operations, unless exploitation of this capability is left to the triphibious Marines.

The infantry division which completes the air movement training required for participation in air-transported operations utilizing fixed-wing cargo aircraft should be capable of launching a helicopter-borne assault with a minimum of equipment modification and with little additional time devoted to the preparaion of loading plans and familiarization with the aircraft. As was indicated before, this will not do away with the requirement for airborne troops trained for parachute assault until the radius of action of helicopters or other

vertical ascent and descent aircraft is extended to a distance which will permit the launching of large-scale, independent operations as deep in the enemy rear as can now be done by fixed-wing troop carrier aircraft.

The Principles of War

Experience has shown that every major advance in mobility has had a profound effect on operations in war. The air mobility developed during World War II was employed on a relatively limited scale for special operations of airborne forces. With the advent of aircraft which bring the airborne assault within the capabilities of standard ground forces, air mobility becomes an operational technique of great importance to the field army. This is particularly true when the necessary air transport may be organic to the field army, as will be the case when some of the transportation helicopter battalions of the type field army are equipped with cargo helicopters of up to 8-ton lift capacity.

The acquisition by the field army of a capability for launching limited-objective airborne operations employing the standard infantry division delivered by helicopter transportation is a new development which is attainable. Such new developments can usually be given a preliminary evaluation by analyzing them in light of the time-honored principles of war.

The Objective

This principle implies the direction of all efforts toward a decisive, obtainable goal. The ultimate objective of war is the destruction of the enemy's armed forces and his will to fight. The capability under consideration vastly expands the number and types of attainable goals open to the army commander, thus adding flexibility of selection of intermediate objectives directed toward the destruction of enemy forces. Why this is so will be apparent as the other principles are discussed.

Simplicity

Today an airborne assault can be made only by airborne forces composed of specialists of two services—airborne divisions and troop carrier air forces. These forces are normally and properly retained under the control of the theater commander for the planning and execution of missions which are of greatest importance to the theater effort. Planning for operations by the airborne force in conjunction with field army operations of necessity involves joint planning on a co-operation basis and frequently by planning headquarters separated by great distances.

Joint plans are of themselves complex in nature. Therefore, the capability of planning and launching limited-objective airborne assaults using means organic to the Army should result in considerable simplification in the process.

The elimination of the requirement for providing airborne specialists and aerial delivery equipment peculiar to the parachute assault should also result in much simpler logistical support of the forces involved. A saving in training time required to qualify forces for this type of operation as compared with parachute assault would enable the commander to select any available infantry division for the task.

Unity of Command

For every task there should be unity of effort under one responsible commander. Such is certainly the case under the concept considered in this article. The army commander has absolute freedom of action in mission assignment to organic helicopter units. He may employ the helicopters to transport forces under his control or may allocate them to corps for the transportation of divisions under corps control.

In either case the appropriate commander has full authority over the participating forces which ensures unity of effort.

The Offensive

This principle implies the seizure, retention, and exploitation of the initiative. It is exhibited on the defense as well as on the offense. Availability of a helicopter-borne assault force will provide the commander with more freedom in the selection of a time and place for commitment of elements up to a division in size for the following type missions:

1. Seizure of crossings over major obstacles.
2. Seizure of critical terrain to facilitate the advance of friendly forces, prevent the reinforcement of enemy forces, or to assist in the destruction of enemy forces.
3. Exploitation of the effects of atomic attack.
4. Execute strong counterattacks.
5. Killing or spoiling attacks.
6. Attacks to gain terrain more favorable for the defense.

Maneuver

The positioning of resources to favor the accomplishment of a mission includes the maneuver of not only superior combat power but also the rapid positioning of logistical support. This involves a consideration of time, distance, and the capabilities of the transportation means employed. As has been previously pointed out, the helicopter is able to use the shortest routes, thus increasing the distance which can be negotiated in a single operation. Enemy flanks become more accessible. The vertical flank always exists; and, until its envelopment becomes commonplace, it will usually be less effectively defended than other areas. Furthermore, the helicopters' speed, as compared with ground transport, makes possible rapid reinforcement of threatened areas or exploitation of advantages gained by friendly forces. Helicopters are not affected by sabotage of the right of way. Thus, the encirclement and destruction of routed forces is greatly facilitated. Unlike other improvements in mobility, the helicopter does not increase our dependence on traversable terrain or upon engineer support.

Mass

Under this principle, the maximum practicable military superiority is brought to bear on the enemy at the decisive place and time. Mass can be achieved very rapidly through the employment of helicopter transportation to concentrate forces from dispersed assembly areas. The decisive place has been defined by some as that location which, because of terrain, weather, enemy dispositions, or other factors, or a combination of any or all of these factors, offers the greatest opportunity for the accomplishment of the mission. With variations in any of the factors, the decisive place may change and some locations may be decisive places only for fleeting periods. The availability of helicopter-borne assault forces will give the commander a better opportunity to capitalize on their speed and mobility in the selection of decisive places and times beyond the reach of forces tied to the ground.

There is yet another way in which the capability for helicopter assault will facilitate the exploitation of the principle of mass. The enemy will be forced to disperse his defenses in depth as a countermeasure, thus reducing the combat power he might otherwise have on any given front.

Economy of Force

The allocation of minimum essential combat power to secondary efforts is always somewhat of a calculated risk. The higher the mobility and power of the reserve, the less serious the risk involved. Rotary-wing mobility for reserves should be of importance in this respect. The possession of an airborne assault capability for the infantry division transported by helicopter would also result in economies of logistical force. No elaborate facilities

such as marshalling camps and permanent or extensively prepared air strips would be required, thereby saving not only construction effort but also the transportation which would be required to move the assault forces from their concentration areas to the marshalling camps and airfields. In most areas, helicopter assault transportation could be brought to the assembly areas of the units to be lifted.

Surprise

Secrecy, rapidity of execution, and deception may be employed to enable the commander to gain surprise in time, place, direction, size of force, tactics, and weapons or supply. The speed of movement of helicopter-mobile forces, their ability to launch operations without marshalling in the vicinity of airfields, the capability of avoiding ground obstacles and assaulting areas which otherwise would be inaccessible, and their maneuverability which permits the use of darkness or smoke to conceal their movement are all significant factors which will be of material assistance in the achievement of surprise.

Security

All measures which are taken to guard against effective hostile interference with our own operations fall under the principle of security. Some of these measures are the provision of reserves, the dispersion of units and logistical support which is necessary in a mass-destruction age, and the use of cover and concealment and other counterintelligence measures. Here again, forces to be lifted by helicopter can launch their assault from locations which will take the maximum advantage of adequate dispersion and the cover and concealment available. They do not have to move to marshalling areas, as do airborne forces which are lifted by conventional aircraft, and for this reason counterintelligence activities will not be as difficult. The availability of helicopter transport in the field army for the lifting of an infantry division-size force would add measurably to the flexibility and power of the reserves which can be employed in the farflung areas of the army zone operations.

Conclusions

Combat operations, field tests, and maneuvers have demonstrated conclusively that the helicopter is a suitable airborne assault vehicle.

The practicality of 8-ton lift helicopters has been established.

The present capability of the standard infantry divisions to air transport the bulk of their combat power in 8-ton fixed-wing aircraft can be translated readily to the more versatile cargo helicopter.

The capability of launching limited-objective airborne operations employing standard infantry forces and organic transportation will accrue to the field army through the proper application of foresight and funds. For the first time the army commander will have under his command both the transportation and the troops required for airborne assault. This will ensure unity of effort and command, speed and simplicity of planning and in execution, great flexibility in the selection of the decisive time and place for commitment of division-size forces, and the ability to capitalize on relatively unrestricted maneuver to envelop flanks and overcome obstacles. This same capability will strengthen the defense by increasing the mobility of the reserve for counterattacks, killing attacks, spoiling attacks, or attacks to gain more favorable terrain for the defense. The acquisition of this capability is simply a matter of emphasis and funds.

Strategic airborne operations will continue to require conventional combat cargo aircraft and specially trained and equipped airborne forces until the range and radius of action of vertical lift aircraft is increased from four to eight times that which presently exists.

The Army's Aviation School

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THOUGH long known throughout the world for its mission of training United States artillerymen, Fort Sill, Oklahoma, has another training mission which is constantly increasing in importance—the training of Army aviators at the Army's only flying school.

Flight training first took place at Fort Sill's Post Field during World War I, when the Signal Corps trained pilots and observers there. During the 1930s, balloons and blimps were a common sight at the old artillery post.

In the early 1940s, forward-looking Army officers were convinced that lightplanes, although unarmed and unarmored, could perform valuable work by serving as the eyes of the Army's ground forces. Since that time, a great many pilots have been trained by the Department of Air Training of The Artillery School.

In 1953, the Army Aviation School was established to train officers and men from all branches of the Army which have or use aircraft. Among the main courses offered is the Army Aviation Tactics Course, which trains ground officers to be pilots in 30 weeks.

Approximately 18 weeks of the trainee's time is spent at Gary Air Force Base, San Marcos, Texas. Here the beginner goes through the Army Primary Flight Training Course, with instruction being given by Air Force personnel. Many of the instructors at the Army Aviation School at Fort Sill and Gary Air Force Base have logged several thousand hours flight time. Their advice and help develop pilots capable of doing the rugged type of flying needed to perform missions for ground troops.

At San Marcos no one speaks of supersonic speeds, high altitudes, and enormous runways. They are more interested in their little *L-21* that flies along at approximately 90 miles an hour, just over telephone wires and lands on most any small patch of earth.

The remaining 12 weeks of the training program is spent at Fort Sill in the Aviation Tactics Course. This specialized course is divided into three sections of approximately 4 weeks each—transition, intermediate, and tactical training.

When the student arrives at Fort Sill from San Marcos, he knows how to fly but lacks the specialized training which he will need to perform missions for ground troops.

In the transitional period, the student leaves the *L-21* and begins to fly the Army's standard plane, the *L-19 Bird Dog*.

The students spend a great deal of time becoming proficient in making short take-offs and landings from small fields such as they will be likely to have in combat areas. The short take-offs and landings require the clearing of a 20-foot-high barrier. The student must just clear the barrier and stop within a limited distance on landing, and again just clear the barrier during the short take-off. The barrier is of string, with colored streamers. Although it breaks easily, the pilot can feel it break.

This type of training is invaluable to pilots who may operate from makeshift,

improvised landing fields in combat, such as the dikes and rice paddies in Korea. The Army adopted the short field landing technique from the Navy who use their deck landing technique of coming in hanging on the throttle with the nose high and dip in with one wing low.

The terrain at Fort Sill is ideally suited to lightplane training, offering a variety of flat, rolling, and mountainous terrain. Small fields and roads are spotted throughout the reservation so that students can practice flying and landing under a variety of conditions. Road landings and takeoffs are considered an important part of the flight training schedule.

The training program includes various ground subjects which are standard with flight training. The student studies the engine of the *L-19*, what makes it tick and how to maintain it. Thus, a pilot forced down by engine trouble may be better prepared to repair it himself when there is no mechanic available.

Many training aids are used in the ground instruction and "flights" in the Link trainer give the student the "feel" of flying a plane.

Finally, after many weeks of intensive training, the student is ready to apply his training to such missions as artillery spotting, cross-country and night flying, wire laying, and supply drops.

The *L-19* can carry about 250 pounds under each wing on bomb shackles and parachute supplies to isolated units in small areas. Wire containers may be carried under the wings, with each plane capable of laying 5 miles of wire at a time.

The cross-country and night flights come during the final phase of training. A regular procedure is followed prior to these flights. Students check the weather forecasts before embarking on their flights. Air Force weathermen at Fort Sill's Post Field are part of a nation-wide system.

The student plots his own course, checks out a parachute, and then files his flight plan. The last step is taken so that in case the plane is forced down, searchers will know where to look for the pilot.

Graduates of the tactical course may later take more advanced training, such as instrument or twin-engine training.

The Aviation Tactics Course is open to commissioned officers in the Regular Army, the Reserve, and National Guard who meet various requirements.

The requirements include the following: the applicant must volunteer for the training; must not be higher in rank than a first lieutenant; not over 30 years of age at the time he applies; weigh not more than 180 pounds; and he must not be more than 72 inches tall.

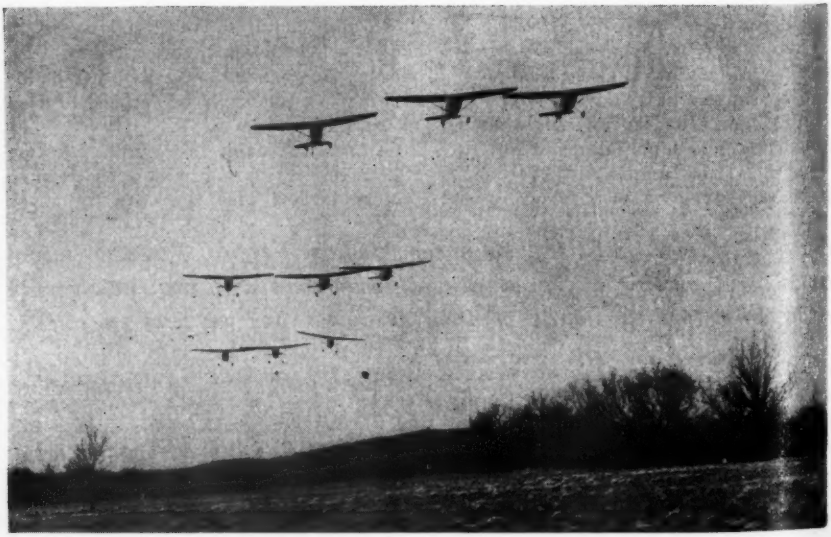
Some of the requirements may be waived however, depending upon the individual situation.

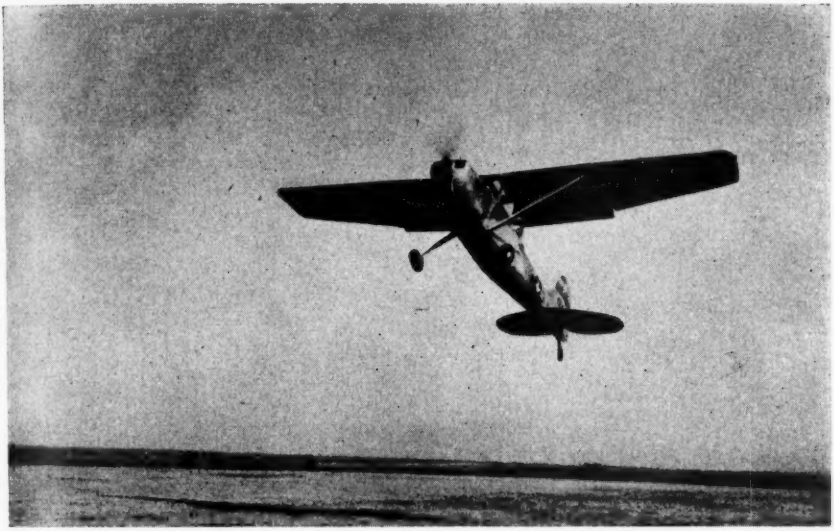
No previous flight training is necessary and the officer must either belong to a branch authorized Army aviation or be willing to transfer or be detailed to such a branch.

Although some of the training at Fort Sill is review, all of it is designed to turn out a finished pilot who can fly under many of the difficulties encountered in a combat zone. The school's graduates go to all parts of the world. As pilots, they will fly the *L-19 Bird Dog* above combat areas, and as soldiers they will know the proper fire request when they spot a profitable enemy target.

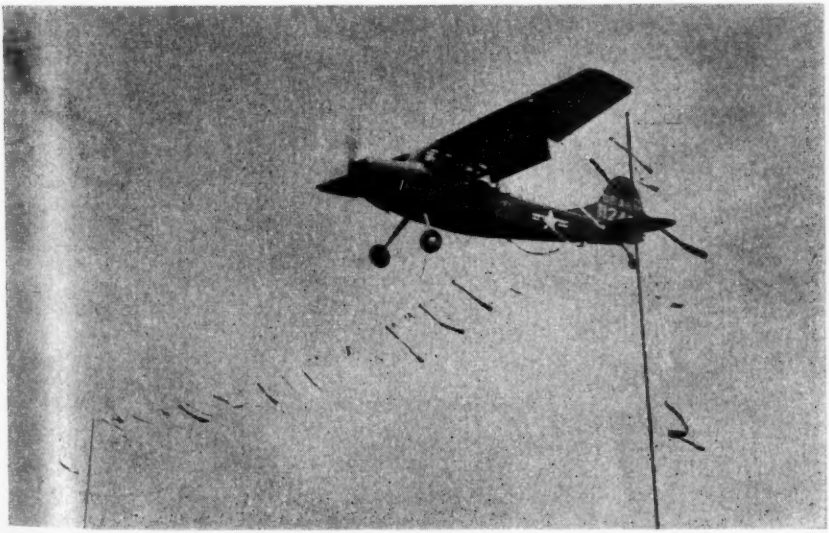
Infantry, Armor, Artillery, Engineer, Medical Service, Transportation, and Signal officers are presently being trained as Army aviators in order to fulfill the needs of their branches and services in combat

In the transitional period of training, the student pilot leaves the primary trainer, the *L-21 Cub,* and flys in the Army's standard plane, the *L-19 Bird* Dog. Above, students, with their instructors riding in the rear, ready to take-off in the *L-19.* Below, *L-19s* flying in a seldom used demonstration formation flight.—Department of Defense photos.

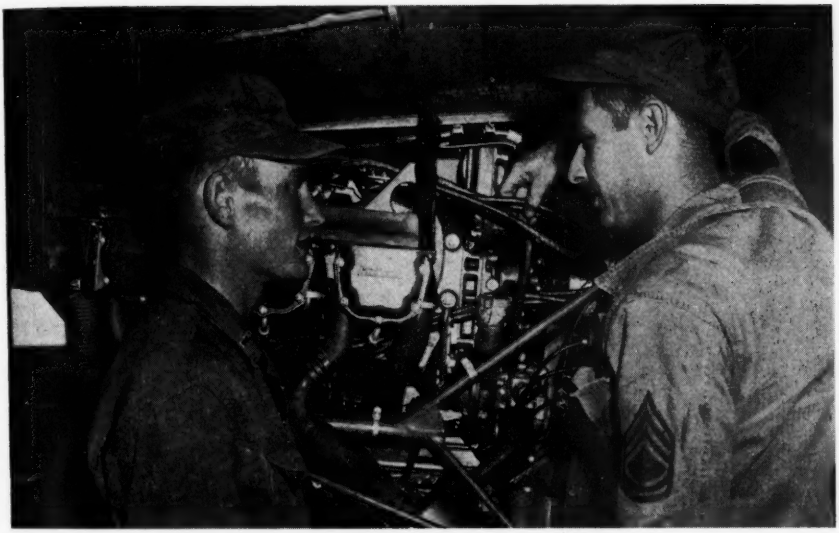




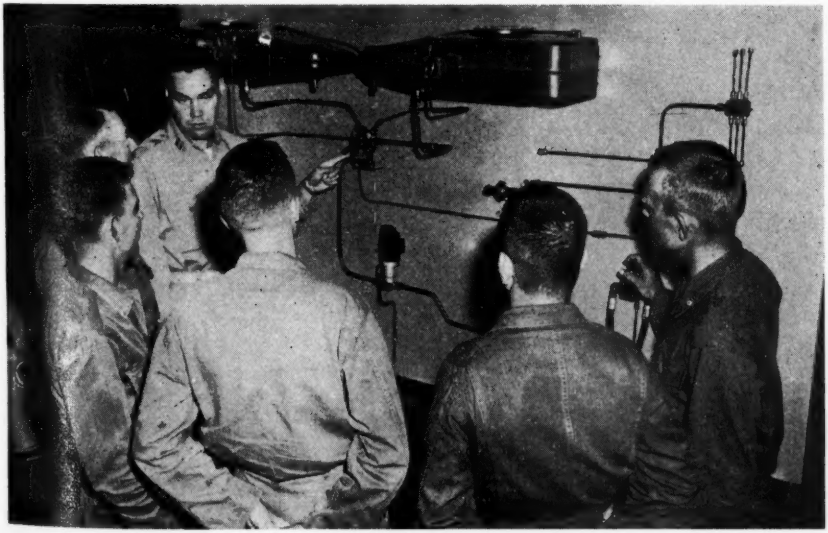
The students spend a great deal of time becoming proficient in making short take-offs and landings from tiny fields such as they would in combat. Above, a student pilot making his *L-19* leap into the air during a short take-off. Below, a student attempting to clear a 20-foot-high barrier while landing the *L-19*.—Department of Defense photos.

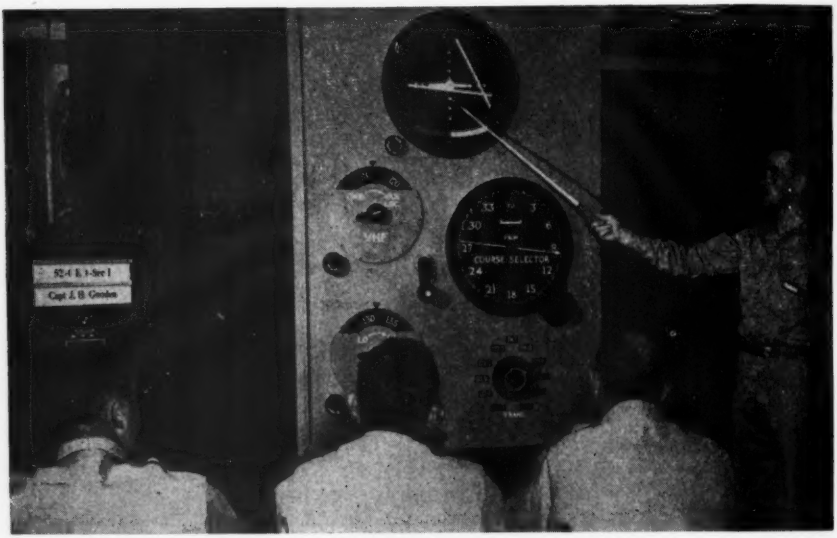


The terrain at Fort Sill, Oklahoma, is ideally suited for lightplane training, offering flat, rolling, and mountainous country as well as many small fields and roads. Above, a student class taking off from a field at Fort Sill. Below, a student pilot making a practice landing on one of the many gravel roads.—Department of Defense photos.

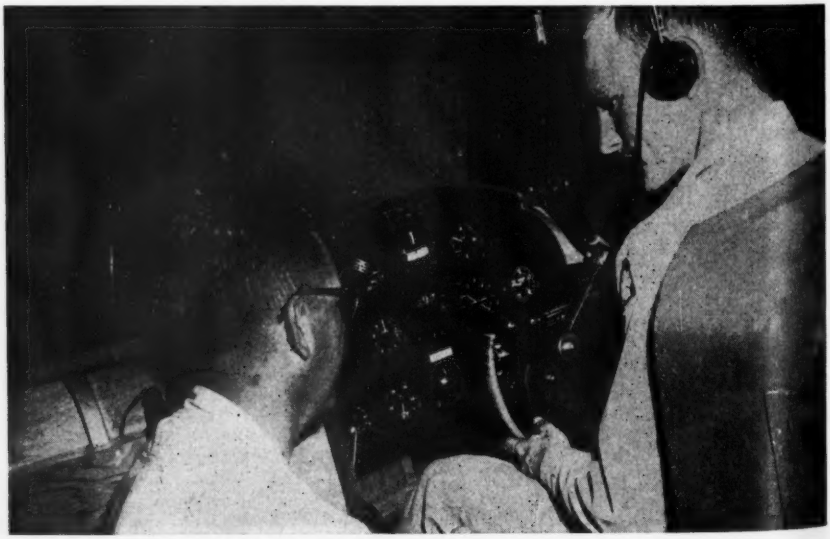


The training program includes ground subjects which are standard with flight training. The students learn all about the engine of the *L-19*, what makes it tick and how to maintain it. Above, a mechanic briefing a student pilot on the *L-19's* engine. Below, student pilots learning about the *L-19's* fuel system.—Department of Defense photos.





Many training aids are used in the student's ground instruction and "flights" in the Link trainer give the student the "feel" of flying a plane. Above, an instructor using a training aid to teach students instrument reading. Below, a student receiving instructions before starting a "flight" in the Link trainer.—Department of Defense photos.



The *L-19 Bird Dog* can carry about 250 pounds under each wing on bomb shackles and parachute supplies to isolated units in small areas or lay about 5 miles of wire. Above, students preparing an *L-19* for a resupply drop by parachute. Below, a practice supply drop being made by a student pilot in his *L-19 Bird Dog*.—Department of Defense photos.

For cross-country flights, students plot their own course, check weather forecasts, and file their flight plan, the last step before take-off. Above left, a student plotting his course for a cross-country flight. Above right, a student filing his flight plan. Below, a student ready to start his cross-country flight.—Department of Defense photos.

MILITARY NOTES AROUND THE WORLD

UNITED STATES

Future Population

In about 25 years the United States will have a population of 190 million. That is the estimate of Government statisticians.

Whether we will have the food, water, fuel, and other resources to meet the needs of the extra 30 million people added to our present population is one of the most critical problems facing our nation.

Not only will there be 30 million more people in the United States in 1975, but each person will probably want more things and more elaborate things. Even today the appetite of the average American for the country's natural resources is gigantic. He uses up about 18 tons each year.

By 1975, we will be short about 70 million acres of having enough farm land to feed our hungry mouths. To grow enough food to set the nation's tables, it will be necessary to eliminate the terrible toll now taken by insects and plant and animal diseases, and to develop still better crop varieties and animal breeds.—*Science News Letter.*

Military Air Transport Service

Since it was started in 1948, the Military Air Transport Service has carried 1,650,000 military passengers, 240,000 medical patients, and 316,000 tons of cargo.—News release.

Flight Simulators

As part of the intensified program to increase the number of volunteers for flying training in the Air Force ROTC program, the use of classroom simulators has been introduced in addition to the organization of private flying clubs and the utilization of Air Force aircraft for orientation flights. The program presently has 145,000 enrolled.—*Army Navy Air Force Journal.*

Reserve Officers

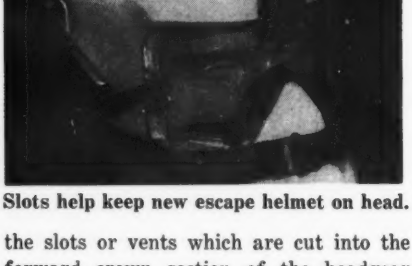
There are more than 64 percent of the Army's reserve officers who have agreed to exchange their old, 5-year commissions for indefinite term appointments now provided by law.

Of 353,895 officers offered a choice between giving up their military standing or accepting the indefinite commissions, 227,225 stated that they would stay with the service. An additional 15,246 officers will be given another chance to take indefinite commissions before their 5-year appointments expire.

Reserve officers of the Navy and Marine Corps already are serving indefinitely and the Air Force is awaiting final returns on its change from short- to indefinite-term reserve commissions.—News release.

Slotted Helmet

Development of a new slotted helmet designed to protect pilots forced to bail out from their aircraft while traveling at supersonic speeds was recently announced by the United States Air Force's Air Research and Development Command, Baltimore, Maryland. It is reported that



Slots help keep new escape helmet on head.

the slots or vents which are cut into the forward crown section of the headgear greatly reduce wind shock and air lift and keep the helmet secure to the pilot's head. Research showed that air rammed into the front of the ordinary helmet built up pressures inside that soon became greater than the strength of the fittings attaching the helmet to the pilot thus causing the helmet to be blown off. Slots were cut into the areas which showed up as negative pressure areas. This provided escape vents for the internal air pressure and also created a partial vacuum which helps hold the helmet firmly in place.—News release.

Road Needs

A former chief of Army Engineers estimated that it would take 40 billion dollars to correct deficiencies in the nation's road system and said it could become a major economic problem.—News release.

Dust Generator

To determine if items such as tractors, engine generators, prefabricated buildings, and methods and materials for packaging are sufficiently protected against the penetration and deterioration caused by dust, the Climatic Test Team of the Engineer Research and Development Laboratories has developed a dust generator. Test procedures are determined on the basis of constant conditions and not when nature has a mind to act, thus the need for a dust generator.—News release.

Air Flare

A new device for providing an intense, continuous light source for taking night aerial photographs has been responsible for some of the reports of flying saucers in the past 2 years the Air Research and Development Command revealed recently. The device, called the "Hell Roarer" because of the noise emitted when in operation, enables the taking of night aerial photographs by means of special cameras. It is felt that the device has solved the old military problem of how to take pictures of enemy activity at night from very low altitudes and at high speeds.

The mechanism, contained in a torpedo-like 12-foot cylinder, attaches to the wing of a reconnaissance aircraft and is controlled by the pilot. The fuel for the flare is a finely pulverized magnesium powder, which burns at an extremely high temperature.—News release.

Flying-Suit

A new pilot's flying-suit made of lightweight nylon with a built-in parachute harness and a new-style nylon parachute will soon be issued to Navy pilots. The pack is shaped to fit the contour of the pilot's back and is further lightened by a new type of oxygen supply tube, lightweight parachute buckles, and the absence of a separate shoulder harness.—News release.

Communications Changes

Plans to revise the Army radio communications systems in Korea will allow the infantry, artillery, and armor to talk to each other directly, a process which involved many difficulties in the past. Under the old system the artillery had 120 channels available to it, but only 10 were readily available. To use the remaining facilities, it was necessary to take apart the radio, change the crystals, and retune the set. There were 120 separate crystals, one for each channel, so the process was costly in both time and labor.

With the new radios being installed, however, all 120 frequencies are instantaneously available at the flick of the switch and 12 crystals serve for all channels. The old system allotted 120 channels to artillery and 80 to armor, or a total of 200 channels for an entire division. The new system will still assign 120 frequencies to artillery, but will provide 170 channels for the joint use of infantry and armor, thus making available 90 more channels.—News release.

Supersonic Fighter

The swept-wing *YF-100*, the prototype of the Air Force *F-100* supersonic jet fighter, has completed its first test flights. The plane is designed to fight at speeds greater than the speed of sound although its actual performance details are restricted.—News release.

Lifeboat Radio

A new emergency type portable lifeboat radio, designed and constructed so that a person without any knowledge of radio can operate it, has recently been developed and approved for use by the Federal Communications Commission. The self-contained radio transmitter-receiver incorporates the most advanced techniques and complies fully with the requirements of the 1948 London safety-at-sea convention.—News release.

HOK-1

The Navy's newest helicopter, the *HOK-1*, recently completed its test flights. It is a twin intermeshing rotor machine and uses aerodynamic servo-controls. Small "servo-flaps" mounted at the three-quarter radius of each rotor blade are actuated

The Navy's new *HOK-1* helicopter in flight.

by the pilot to impart control to the rotors. The performance figures on the 4-place helicopter are classified but in addition to its use as a general utility ship, it can be converted to an aerial ambulance. As such, it can carry two litter patients, one ambulatory patient or medical attendant, and pilot.

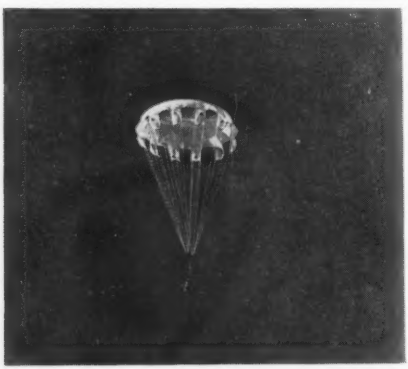
It is powered by a Continental *R 975-40* nine-cylinder, air-cooled engine. The powerplant has a 500 horsepower take-off rating and develops 450 horsepower for continuous operation.—News release.

Radioactive Vegetables

Research has shown that radioactive strontium, one of the fission products of an atom bomb blast, can be taken up readily from the soil by such vegetables as beans, radishes, carrots, barley, and lettuce. This could prove to be a future hazard to human beings eating these vegetable crops if there is an atom bomb blast.—News release.

Life-saving Parachute

The development of a new type life-saving parachute for use at supersonic speeds has recently been announced. The personnel guide surface parachute, as it is called, has reduced oscillation to virtually zero, reduced the rate of descent,



Flaps slow descent rate of new parachute.

and reduced the opening shock at high operational speeds. The new canopy was developed at the Wright Air Development Center, Dayton, Ohio, and utilizes revolutionary principles of parachute design including extra "pockets" to achieve its safety features. It has been tested extensively to prove its air-worthiness by being submitted to more than 700 live jumps as well as 300 drops with dummy weights. It has been tested successfully at speeds of 410 miles per hour. Engineers claim that it is feasible that a man may be saved from 500-foot altitude at a speed of 400 miles per hour.—News release.

'Portable Secretary'

A newly designed airborne tape recorder that can log everything that happens during any airplane or missile flight is small enough to fit snugly into aircraft wing roots or luggage compartments. The compact, fire- and crash-proof unit can be run 10 hours nonstop.—News release.

Huge Camera

A giant-size camera that uses film measuring 3½ feet wide and 4 feet high has been designed, built, and put to work at an aircraft plant recently. The camera, used to reduce and enlarge wall charts and blueprints, is 29 feet long, 10 feet high and has a copy board 12 feet wide and 5 feet high.

It is so large that the front is in one room and the rear is in another. The rear room is designed to double as a darkroom so that the film can be transferred directly from the camera to developing trays. It can also serve as an enlarger, producing drawings with less than two one-thousandths of an inch deviation for each twelve feet of the original.—News release.

Midget Motor

A midget motor, slightly bigger than a rolled-up newspaper, to be used in new electric torpedoes is being produced for the Navy. The 25-horsepower motor will start the torpedo's heavy gyroscope, the device which guides the torpedo to its target.—*Science News Letter.*

Airborne Television

Army strategists in the future may be able to study the effectiveness of their moves by the use of television cameras scanning battlefields from small airplanes. The program is currently under development at the Army's Signal Corps laboratories, Fort Monmouth, New Jersey, where the system has proved effective in sending pictures 20 miles when the camera was at an altitude of 1,000 feet. Snow began cropping into the picture at about 37 miles, and "noisy" pictures jittered on the screen when the camera was 60 miles away and 3,000 feet high. The airborne camera and equipment weigh 425 pounds and can be carried in an *L-20* airplane. Only one person is required to operate the traveling television station.—*Science News Letter.*

Landing Vehicles

Contracts totaling 39 million dollars for the construction of an unspecified number of tracked landing vehicles for the Marine Corps have been awarded recently by the Navy. Other contracts, for $1,463,600, were announced for the construction of 25 boats ranging in size from 40-foot personnel craft to 110-foot subchasers.—News release.

Locomotive Storage

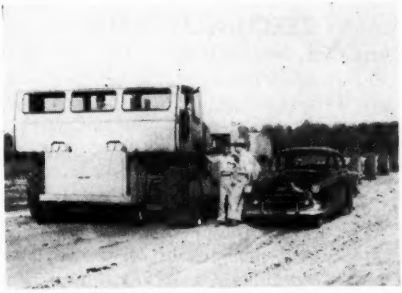
An experimental project on the prevention processing of a 120-ton *MRS-1* Diesel Electric Locomotive for on-track long term storage has proved highly satisfactory in tests conducted at Marietta Transportation Corps Depot. After internal processing, the locomotive was further protected by the construction of a water shed. The framework was constructed from 1- by 4-inch and 2- by 4-inch lumber which in turn was covered by target cloth. A strippable, adhering coating was then sprayed upon exterior surfaces of the target cloth to present a water and airtight surface to overhead and side attacks of wind, snow, sleet, and rain. Internal processing was accomplished for protection against sweating within the interior areas of the locomotive but no attempt was made to seal the locomotive itself from air circulation.—News release.

Jet Seaplane

The Navy recently unwrapped the first jet fighter seaplane, the *Sea Dart*, in a public demonstration; but many of its details were still classified. Instead of lifting out of the water on floats or a boat hull, the new fighter skimmed off the water on skis and climbed into the air at great speed. The speed potential of the plane was not disclosed. The skis appeared to have small wheels or rollers attached for moving onto beach ramps but no one would discuss this feature.—News release.

Rubber Tired Railraod

A rubber tired locomotive and freight car combination designed for operation over pathless desert sands or a cheaply constructed road through the jungles has recently made its appearance. The heart of the *Tournatrain* is the "electric wheel,"



The new, huge locomotive, the *Tournatrain*.

which carries a large pneumatic tire and has within its rim an electric motor and gear reduction. Every wheel of the train is a rubber tired, self-propelled electric wheel which derives its energy from the locomotive which mounts diesel engine driven electric generators. The engineer, from his cab on the locomotive, applies power at will to all wheels of the train. In this manner each freight car provides a propulsion for its own load—with each car pushing and pulling at the same time. There are no brake shoes to wear out because the same electricity that drives the wheel can be used to hold it back going down hill. There is an automatic spring loaded brake provided for emergencies. Each car is coupled to the car ahead of it in such a way that it follows and turns in the same path.—News release.

Tiny Motor

A tiny electric motor, smaller than most women's thumbs, has been designed to fit into standard aircraft instrument cases only two inches in diameter.—News release.

UNION OF SOUTH AFRICA

Army Tanks

The Union of South Africa has announced that it will have a division of *Centurion* tanks within the next 3 years. A division requires 200 tanks and 20,000 men.—News release.

CZECHOSLOVAKIA

Classified Information

Information and statistics on Czechoslovakia's foreign trade, farm output, and governmental budget have been classified as state secrets in Communist Czechoslovakia.

Severe punishment awaits "nonauthorized" persons who discuss any of these subjects or a long list of other restricted topics, according to a recent Government announcement.

All information and data about industry, agriculture, trade, and transportation now is secret. The amount of currency in circulation, the number of persons using public transport, and all figures pertaining to the Government's income and expenditures also have become restricted information.

Plans and estimates of foreign trade fall under the order, while industrial output is to be publicly referred to only in terms of percentages of targets achieved.

Military matters head the list, with a top-secret classification on all Army statistics and details of equipment.—News release.

CANADA

Military Aid

The Canadian Army has announced that it is sending military equipment to Italy and Portugal under the mutual aid program. Italy will receive 80 light antiaircraft guns and 87 heavy-duty trucks while Portugal will get 18 of the heavy-duty trucks. The 20-mm Polsen type guns are equipped with maintenance tools and spare parts.—News release.

JAPAN

Plastic Money

If plastic manufacturers are persuasive enough, Japan may some day have plastic money. Executives of the largest producer of plastics in Japan have been attempting to persuade the Finance Ministry to print money on hard plastic film instead of paper. They claim the money would stand-up better to the wear and tear of handling, look more attractive, last longer than paper money, and be waterproof.—News release.

Officers Drill

Field exercises were recently held by the first group of Japanese Army officers to be trained in the United States since World War II. The exercises, consisting of drill with light weapons, bayonet practice, and physical training were held to display the officers' readiness to deal with threats to the internal security of Japan.

The officers are part of the group of Japan's National Safety Corps being trained at various military installations in the United States at the request of the Japanese Government.—News release.

ITALY

Ammunition Contracts

Off-shore procurement orders for nearly 13 million dollars worth of ammunition have been placed with companies in Florence and Brescia, it was announced recently.—News release.

Battleship Retired

The *Andrea Doria*, one of the two Italian battleships, has been retired after 40 years of service.

The ship is presently manned by a skeleton maintenance crew but will be recommissioned if necessary. Her sister ship, the *Duilio*, now is the only battleship on active service with the Italian fleet.—News release.

THE NETHERLANDS

Steel Mill

A new 36-million-dollar steel mill, was recently opened at Velsen. Half the cost came from United States aid funds.—News release.

INDIA

Travel Regulations

The rigid regulations and cumbersome procedures that have been raising awkward barriers to travel between India and Pakistan have been removed.

As a result, rail traffic between India and West Pakistan, cut in 1947, is expected to be resumed soon.

Visa offices will be opened at convenient places and multi-journey visas will be issued freely. Residents of West Bengal, India, and East Bengal, Pakistan, who regularly cross the border daily will receive multi-journey visas good for 5 years.

A number of new land routes will be opened to facilitate trade and travel and old restrictions on movements of visitors will be relaxed.—*The New York Times.*

COMMUNIST CHINA

Dandelion Rubber

Communist China's Ministry of Light Industry has extracted rubber from a variety of dandelion and used it to produce tires, rubber shoes, and machine belts, according to a dispatch by the New China News Agency (MILITARY REVIEW, Aug 1953, p 68).

Experiments had been carried out at the Ministry's industrial laboratory since 1951. Scientists now are concentrating on raising quality and reducing costs with a view to mass production.—News release.

Women Rail Workers

The Peking radio announced recently that more than 25,500 women now work for railroads in Communist China with jobs ranging from train dispatchers to locomotive engineers.—News release.

CHILE

Population Increase

The Government announced recently that Chile's population had increased by more than 18 percent in the last 12 years. Final figures of last year's census showed a total population of 5,930,809.—News release.

TURKEY

Defense Installations

The Turkish National Assembly recently passed a law permitting the construction in that country of military airfields, fuel storage depots, oil pipe lines, communication facilities, and military headquarters as part of NATO's infrastructure program for collective defense. The new installations are to be financed with approximately 68 million dollars furnished by NATO.—News release.

USSR

Soviet Translations

Soviet scientific works will be translated into English to make it easier for American scientists to keep informed of developments abroad it was recently announced by the National Science Foundation. About 1,000 pages of Soviet physics research reports will be translated this year.

The United States Atomic Energy Commission will print the completed translations for distribution to government agencies.—News release.

PORTUGAL

Army 'City'

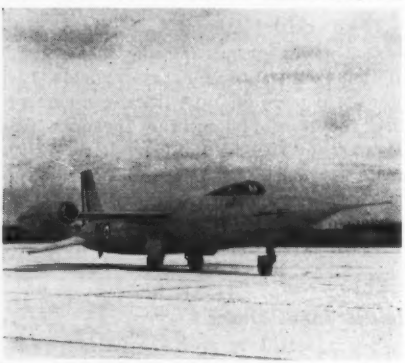
The latest word in training camps, the "city" of Santa Margarida with a capacity of 20,000 inhabitants, has recently been completed near Lisbon. The camp was built by the Portuguese Army and is equipped with an airfield, railway station, shops, five movie houses, playing fields, five swimming pools, and a hospital. The United States has contributed 85 *Patton* tanks for use at the new camp.—News release.

FRANCE

Supersonic Jet

The first French plane to crash the sonic barrier in horizontal flight—the *Trident*—packs its jet engines in wing-tip nacelles. The speedy interceptor also carries a rocket in the tail, to give it a very fast rate of climb.

Once the rocket fuel is exhausted, the



France's fast *Trident* jet-rocket fighter.

plane's light weight gives it a lower landing speed than that of any other modern fighter.

It can be accommodated on small and inexpensive base facilities, and the relatively simple design of the plane will make it possible to turn out large numbers of the stubby-winged fighters quickly and at low cost.—*Popular Science Monthly.*

Merchant Fleet

France's merchant fleet now numbers 751 vessels, compared with 670 in 1939, according to an announcement by the Merchant Marine Ministry.

Present tonnage of the fleet is 3,487,467, compared with 2,733,623 just before World War II.

The fleet consists of 87 liners, 115 tankers, and 549 cargo ships. Another 11 liners, 39 tankers, and 39 cargo ships are being built in French shipyards.—News release.

WESTERN GERMANY

Aluminum Plant

The United States has approved a 10-million-mark ($2,380,000) loan for the reconstruction of a Ruhr aluminum plant.

The loan is being made under the basic materials program of the Mutual Security Agency, which helps make available materials needed by Western countries already receiving American aid.—News release.

Civil Air Traffic

The Western allies recently handed control of civil air traffic over Western Germany to the German Federal Government.

The Germans now will be responsible for directing civil aircraft in the air over their territory as well as controlling landings at civil airports. The allied air corridors to Berlin will remain under military control.

The Germans still cannot fly their own planes, however. This cannot be done until the Bonn peace contract and the associated European Army pact are ratified. —News release.

Merchant Fleet

Western Germany's merchant fleet, almost totally destroyed during the war, has been rebuilt to a tonnage of 1,840,000 tons.

With nearly a million tons of new ships now being built in North Sea and Baltic shipyards, Western Germany rapidly is regaining importance as a maritime nation.

In 1939, Germany, with 4,500,000 tons, had the fifth largest merchant fleet in the world. This proud fleet was reduced to 120,000 tons of old vessels.

Allied restrictions kept the fleet down to 120,000 tons until 1949. As security limits on German shipbuilding were progressively lifted the fleet grew until on 1 April this year it reached a total of 1,600,000 tons of seagoing ships and another 240,000 tons of fishing boats and other vessels.—News release.

GREAT BRITAIN

Fire-warning Device

British air safety experts have developed a plane fire-warning device which automatically switches on a warning light or sounds an alarm in the cockpit when it "smells out" a fire.

The device consists of a length of steel wire with a temperature-sensitive metal filling, through which an electrode runs. As the temperature rises, the electrical resistance of the filling decreases. When it reaches the point at which there is danger of fire, the circuit is completed and the warning sounds.—News release.

Testing Device

The admiralty announced recently that a giant frame, capable of crushing the bow of a destroyer like a nut in a nutcracker, had been built under its supervision for the purpose of testing sections of ships' structures.

The announcement said that the equipment previously available to naval architects and structural engineers had been useful only for testing small-scale models and that the new device would permit the checking of full-scale structures.

The frame is actually a large box made up of steel cells with a power-operated door at one end. To the walls, roof, and floor of each cell powerful hydraulic jacks, capable of exerting tremendous pressure, can be fitted and used to test the exact strength of the structures under study.—*The New York Times.*

Radar 'Eye'

A new radar "eye" for gun sighting equipment said to enable fighter pilots to boost kills by three or four times is being furnished new British jet fighters. The range-finder tunes in on enemy aircraft and feeds correct data automatically to the gun sight while previously the pilot had to feed the range manually into his sight.—News release.

AUSTRALIA

Rocket Range

The security curtain on Australia's development of secret weapons was drawn slightly aside recently when members of the press were taken on a tour of the Woomera Rocket Range, the field testing

Vertical take-off formula demonstrated.

ground of the Long Range Weapons Establishment.

Among the highlights of the tour were the flight of a *Jindivik Mk-1*, a pilotless, 23-foot-long radio controlled jet aircraft being developed to hunt down and destroy attacking aircraft, even though they are of supersonic speed, and the launching of a model demonstrating the vertical take-off formula.

The *Jindivik* is a small, lightweight, high-speed aircraft which takes off, maneuvers, and lands by remote control. It is launched along a runway from a detachable trolley and lands on a retractable belly skid. It is built from cheap materials and is expendable if hit.

The vertical take-off demonstration explored the practicability of launching aircraft from short ramps at low accelerations, and included test launches in near-vertical climbs. At present this is an auto-controlled research aircraft but research is aimed at piloted flight.—News release.

KENYA

Dogs Guard Installations

The Royal Air Force has brought in highly trained German Shepherd dogs to guard its installations in Kenya against Mau Mau terrorists. The dogs were airlifted in from a training center in the Suez Canal zone.—News release.

DENMARK

Coastal Destroyers

The "big ships" of Denmark's new navy will consist of six heavily armed coastal destroyers of 3,000 tons each.

The ships will be armed with automatic, electrically controlled 120-mm guns of high muzzle velocity, capable of firing not only at sea level but also against aircraft. They will be fitted with the most modern fire-control apparatus.

The building program is linked to the defense of the three belts through which the Baltic is connected with the Kattegat and the North Sea. The Danish fleet will consist of coastal destroyers, escort ships, motor torpedo boats, submarines, patrol boats, minelayers, and minesweepers.

Because of Denmark's small shipbuilding capacity, it will take several years to complete the destroyers.—News release.

ISRAEL

Labor Duty for Women

The Israeli Cabinet recently approved a bill providing for 2 years' compulsory labor service for women who are exempt on religious grounds from military service.

Under Israel's National Service Act, all women between 18 and 26 are liable to 2 years of military service. Men serve 30 months. Women may be exempted if they come from orthodox homes where objections are raised on religious grounds.

The new bill makes such women liable to serve instead in works of national importance, such as agriculture, health, education or social services, or in immigrant camps.—News release.

KOREA

Salvage

Half the tanks, artillery, and infantry weapons and two-thirds of the wheeled vehicles used by the United Nations forces in Korea have been salvaged from scrap piles and reconditioned according to an article in *Steelways*.

The operation started in 1948 when huge cutbacks in military spending left the United States occupation forces in Japan below their minimum authorized allowances. Billions of dollars worth of equipment was scattered over the islands of the Pacific, left there after World War II because it was too expensive to ship home. Salvage teams shipped the material to Japan where it was reconditioned and is now being used again.—News release.

Housing Pact

An agreement calling for the construction of 5,500 housing units for homeless Koreans was recently signed by South Korean and United Nations officials. More than 2 million dollars worth of building material is to be imported.—News release.

PAKISTAN

Buy Locomotives

As part of its program of gradual replacement of old British-made steam locomotives by new American ones, the Pakistan Government is to purchase 97 locomotives from the United States. Pakistan has also ordered diesel-electric workshop equipment, costing more than 2 million dollars, to be placed in shops being built at Karachi and Dacca.—News release.

NORWAY

Scrap Metal

About 16,000 tons of scrap metal has been salvaged from the former Nazi battleship *Tirpitz*, sunk near Tromsö, Norway, during the war. Another 40,000 tons of scrap remains to be recovered.—News release.

FOREIGN MILITARY DIGESTS

Alarm Units

Translated and digested by the MILITARY REVIEW from an article by Hans Christian Treutzsch, captain in the former German Army, in "Wehrkunde" (Western Germany) February 1953.

THERE are times during combat—even in cases of relative equality between opposing forces—when crises arise that require, in addition to the employment of the regular reserves, the employment of forces hurriedly gathered together. Their organization is always an evil, even though it may be a necessity. Under the special conditions of the Russian campaign, the organization of such forces became almost a rule. Born of a permanent state of crisis, their continuous existence constituted an impressive symptom of the actual situation.

The following discussion will illustrate some of the problems that will be encountered in organizing forces hurriedly gathered together. For the purpose of clarity, these forces will be referred to as "alarm units" in the following discussion.

The Physical Situation

Usually the soldier who finds himself included in an "alarm unit" is the man who has become separated from his own unit, a man returning from leave, a man who is convalescing from sickness or wounds, or a supernumerary in a headquarters or service unit. In any case, his connection with his old unit has been broken. This places him in a situation of anonymity. There are lacking, therefore, the regulatory agents which restrain his bad qualities and which cause his good qualities to make their influence felt in the right place. In addition to this, he feels himself to be an outsider, alone and unprotected. He knows none of the other men in the unit, or only very few. Many of the men in the unit are from different branches of the service, and, therefore, as regards combat and the use of weapons, in an entirely different world of ideas. The speed with which the unit is formed instinctively brings up the fact that the unit will soon be engaged in hard fighting—and that he will be committed to battle without the feeling of security that comes from fighting alongside dependable, well-known comrades. To be sure, the morale of such units can never be very high.

There are also other problems which must be considered. To begin with, there is little or no possibility of receiving mail from home under the circumstances. More-

over, the supply situation in such units is generally poor, and will be regarded with skepticism until there is practical proof of its adequacy.

Regarded from the viewpoint of the average soldier, inclusion in an "alarm unit" is looked upon as a personal misfortune. The soldier will always strive to get away from this situation as soon as possible; that is, to return to his old unit. Moveover, he will fight against allowing himself, in the natural course of events, to become accustomed to his new environment, against the growth of the inward feeling that he now belongs to the "alarm unit."

The 'Alarm Unit' Commander

In the case of the "alarm unit," combat worth is more dependent on the qualities of the commander than is the case with the regular unit. The commander must, above all, immediately seek to create the necessary atmosphere for confidence, to impart the feeling that there is someone there who will be able to handle all situations. There must be absolute faith in his combat ability. Therefore, it is wrong to make just any supernumerary officer commander of the "alarm unit."

Even in the case of a great shortage of officers, an officer who has acquired experience on the front must be commandeered for this post, if the unit is to be of any value in combat.

The commander must know every soldier, not only as regards his name and grade, but also his personality and his potential worth in battle. If possible, the commander should speak with each man before an operation is undertaken. An understanding, personal word is able to create more unity and inner cohesion in an "alarm unit" than ever so many carefully considered, exact commands.

Whenever possible, the commander should make his men personally acquainted with the situation, and it is well for him to question them to determine how well he has made himself understood. Along the same line, the commander should let the men ask questions, for this eliminates the chances for future mistakes and helps to remedy many problems that would have an influence on the morale of the unit.

The commander should also tell his men how those matters stand which directly affect them; that is, food, ammunition, and medical attention. Unclarified problems are to be presented as settled or in the process of being settled. In all cases, the man must go into battle with the feeling that he is in a unit whose organization will follow the pattern he is accustomed to. This feeling can be developed only through the ability and personality of the commander.

Organization

The assignment of noncommissioned officers within the "alarm unit" must not be based on rank. Inasmuch as the action will be principally infantry action, noncommissioned officers with prior infantry and combat experience should be given precedence in assignment. Less-experienced noncommissioned officers, and those from other branches or services, should be assigned to duties normally performed by privates. By the exercise of a bit of tact on the part of the commander, the natural feeling of having been demoted can be prevented.

The noncommissioned officers should not be permitted to adopt an overly severe tone in giving commands to the men; who, naturally, are not overly willing to serve. The noncommissioned personnel can still accomplish their jobs without excessive sharpness—and at the same time build up the confidence of the men. It is just as important that the soldier have confidence in his noncommissioned officers as in his commander. Since there will be many evident deficiencies in a hurriedly formed "alarm unit," the creation of a genuine bond from the top down is of major importance. If this is done, there is a good chance that the

unit will not become a mere assemblage of unattached soldiers in its first encounter on the battlefield.

In addition to the many details that the soldier should be told, he should know what heavy weapons—artillery, tanks, antitank guns, and antiaircraft artillery—will support the unit. The knowledge of supporting forces will help the soldier to overcome the feeling of having been "written off." The pains taken for such clarification will always be worth while.

Unit Designation

For the soldier, the "alarm unit" must have a name. Numbers, if possible, should be avoided. A concept is often much more impressive, one which states something about the situation or the future. Words, since they are symbols, help to promote a feeling of unity within the unit. As a rule, the soldiers themselves find a name which they hang on to and which then constitutes the expression of a feeling of unity. Such a name is, therefore, advantageous, particularly if it can exist from the very beginning.

Food and Ammunition

The "alarm unit" commander must do all within his power to ensure that the unit has an adequate supply of food and ammunition. In addition, the personnel assigned to the kitchen and supply sections must be qualified and efficient. Even in the face of a shortage of combat personnel, one must not cut short the personnel of the kitchen or supply sections. In long, drawn-out, heavy action, the field kitchen not only provides an excellent means of maintaining cohesion within the possibly disintegrating unit, but it also exerts a powerful influence in improving the general morale of the unit.

There should be a thorough check on ammunition consumption. Carelessness or lack of experience can be very costly. This supervision, however, must not arouse the feeling that conservation is necessary because there is no more ammunition available. In addition, a man from the "alarm unit" should be assigned to the next higher ammunition supply point, for experience has taught that the unknown "alarm unit" is often slighted.

Unit Administration

As soon as the "alarm unit" is organized, an "orderly room" must be established, even though it is manned by only one soldier. This will bolster morale, for the men will know that their mail is being sent out, and that administrative details pertaining to their records and individual welfare are being performed.

Moreover, without a doctor or aid men in the unit, a sort of assembly point must be established so that wounded personnel can be assembled and directed to medical aid stations to the rear. If this is overlooked, the wounded will collect at the command post and interfere with the operation of the unit. The location of the nearest aid station must be known to all men in the command post, in order that every wounded man may be directed to it. Negligence in this regard can be followed by serious consequences.

In organizing the fighting groups within the "alarm unit," acquaintances which have already developed are in no case to be broken. A wise commander will even let the men choose the men they want to serve with in their squad or platoon. In this way, men from the same localities, comrades from the same former unit, and men who have been acquainted in hospitals find themselves together and form small cells with inner ties which are of the greatest value for the development of a feeling of unity. The commander should intervene, however, in the allocation of battle-experienced men. These men are given the machine guns and automatic weapons and are urged, as experienced soldiers, to feel a responsibility toward the new men in

the unit—an appeal which seldom fails to bear fruit.

The Higher Commander

"Alarm units" should always be considered from above as possessing equal rights with the other units of the command. In fact, because of their special and unusual circumstances, they should be accorded special support by the higher commander. This commander should take advantage of the first opportunity to visit the unit and tell the personnel that he looks upon the unit as a part of his own formation. Above all, the higher commander must see to it that the "alarm unit" is accorded proper recognition whenever it is merited.

Summary

Rapidly gathered together formations have a smaller combat value than closely bonded, regular units. The particular point of weakness is the negative psychological situation in which the individual member of the unit finds himself.

This weakness can be eliminated by providing such units with qualified combat commanders who will have the faith and support of the men; by providing such units with adequate supply arrangements; by permitting the continuation of ties of friendship which already exist in the unit; and by having the complete support and understanding of the next higher commander.

An Unsolved Problem

Digested by the MILITARY REVIEW from an article by K. W. Maurice-Jones in "The Army Quarterly" (Great Britain) April 1953.

THE campaign of Waterloo still presents many problems to the student of military history. Napoleon, having escaped from Elba, reached Paris on the evening of 20 March 1815. On 15 June, he invaded Belgium with the intention of defeating the two allied armies, the British-Allied Army under Wellington and the Prussian Army under Blücher, which were in that country and were the nearest, and therefore the most dangerous, of the French Emperor's enemies.

Napoleon's plan for the invasion of Belgium and the defeat of the hostile armies was one of the best he ever made. It was as follows:

1. To deal with each enemy army separately.

2. To separate the enemy armies by cutting their lateral line of communications, the Namur-Nivelles Road, before they could join together.

3. To effect this by striking along their line of junction, the Charleroi-Brussels High Road.

4. To bring the Prussian Army to battle alone and defeat it decisively with the main mass of the French Army before the British-Allied Army could interfere.

5. To transfer the main mass of the French Army against the British-Allied Army, to attack that army alone and defeat it decisively without interference from the Prussian Army.

6. To occupy Brussels.

Employment of the Plan

This was a masterly plan, and by midnight on 16-17 June, that is to say, 2 days after he had opened the campaign, Napoleon had all but successfully effected items 1, 2, 3, and 4. On that very day he had defeated the Prussian Army at Ligny with the main mass of the French Army without interference from the British-Allied Army. However, the defeat of the

Prussian Army at Ligny had not been decisive, and that had been due to the fact that Ney, who commanded Napoleon's detached western wing, had at the same time been beaten by Wellington and the British-Allied Army at Quatre Bras, 8 miles to the northwest of Ligny, and so had been unable to come with any of his force to Ligny to turn the defeat of the Prussians into a decisive one. The repulse Ney received at Quatre Bras and the nonappearance of any part of his force at Ligny were both brought about by the same circumstances: the failure of the French I Corps under Lieutenant General Count D'Erlon, which formed more than half of Ney's command, to reach either battlefield although, during the afternoon and evening, it approached quite close to both.

Failure of the Plan

The failure of D'Erlon's corps to intervene in either battle had a vital and disastrous effect on Napoleon's plan of campaign. As the direct result of it, he was unable to inflict that decisive defeat on the Prussian Army at Ligny which item 4 of his plan demanded. The Prussian Army, although beaten, was still able to fight again, and was able to make that wonderful flank march from Wavre to Waterloo which, in conjunction with the British-Allied Army under Wellington, brought about the complete and utter destruction of Napoleon's forces. It is, therefore, proposed to examine the reasons that caused D'Erlon's corps to wander to and fro during the afternoon and evening of 16 June, and the problems raised by them.

At 161300 June, Napoleon was about to attack the Prussian Army under Blücher at Ligny with the main mass of the French Army. He suspected—quite correctly—that he had in front of him some 80,000 Prussians, and, as the force under his hand only totaled about 57,000, he doubted his ability to inflict a decisive defeat on them without assistance. He had had no news from Ney since 0900 that morning and had very little idea of the situation at Quatre Bras. He, therefore, sent off an order to Ney (summarized—dispatched from Napoleon's headquarters at Fleurus at 1400; reached Ney about 1645):

1. A body of the enemy is in position around Ligny between St. Amand and Brye.
2. At 1430 Marshal Grouchy will attack this enemy with the III and IV Corps.
3. You will attack the enemy before you.
4. Having driven him back vigorously you will draw back toward us to join with us in enveloping the enemy forces in front of us here.
5. Inform me at once of your dispositions and of what is happening on your front.

By 1500 the battle at Ligny had begun, and the Emperor was by now quite convinced that he had 80,000 Prussians to defeat and could not do so decisively without assistance from Ney. He, therefore, sent off a second order to Ney (summarized—dispatched from Fleurus at 1500; reached Ney about 1745):

1. An hour ago I informed you that I was about to attack at 1430 the enemy who had taken up their position between the villages of St. Amand and Brye.
2. At the moment the battle is going strongly.
3. You must maneuver at once to envelop the right wing of the enemy and fall on his rear. His army is lost if you act vigorously.
4. Do not hesitate to carry out this order at once and to direct your forces toward the heights of St. Amand and Brye so as to join with us in a decisive victory.
5. The enemy is caught at a disadvantage at the moment when he is attempting to join with the English.
6. The fate of France is in your hands.

Employment of the Reserves

By 1730 the battle at Ligny had, in the words of Napoleon, become ripe. Blücher had exhausted all his reserves, the Emperor had used none of his. There was still no news from Ney nor of the approach of any of his troops. Napoleon was, therefore, preparing to win the battle without them. He placed himself at the head of his reserves and led them toward the center of the enemy at Ligny. No sooner had this

movement begun than a galloper arrived from Vandamme, the commander of the III Corps which formed the left flank, with the startling news that a body of troops, possibly hostile, about 25,000 strong was advancing from Villers Perwin toward Fleurus. This information seriously disturbed Napoleon who at once halted the forward movement of his reserves. He could not commit them to the battle without first ascertaining what this mysterious body of troops was. It might indeed be Ney's troops, but they had been directed on to the heights of St. Amand and Brye, and this force was advancing toward Fleurus. It, therefore, might equally well be a portion of the British-Allied Army on its way to attack his flank and rear. Having had no news from Ney, the Emperor had very little notion of what was happening at Quatre Bras. Therefore, he sent an officer's patrol toward Villers Perwin to discover who the intruders might be.

Ney's Predicament

It was nearly 1830 by the time the patrol returned with the information that the intruders were D'Erlon's I Corps. This surprised Napoleon as he was expecting to see Ney's troops coming from the direction of Marbais and moving toward Brye. It was too late now to send an order to D'Erlon to change the direction of march of his corps. Napoleon could only hope that D'Erlon would do it himself on seeing the situation and advance against the exposed Prussian flank. D'Erlon did indeed change the direction of march of his corps, but not toward the battle and the Prussian exposed flank. Napoleon, however, could wait no longer and led his reserves against the Prussian center and to victory.

Meanwhile, 8 miles to the northwest of Ligny, Ney had spent the entire afternoon trying to drive the British-Allied Army from the crossroads at Quatre Bras. On several occasions success had seemed to be within his grasp, but each time Wellington had been able to produce sufficient reinforcements to frustrate his efforts. By 1700 the French marshal had used up all the troops he had immediately available, and his attack had come to a halt. He had just received Napoleon's first order, dispatched from Fleurus at 1400, directing him to drive back vigorously the enemy in front of him and then to proceed to envelop the Prussians in front of Napoleon. Ney had not yet been able to drive back vigorously the enemy on his own front, much less to proceed to envelop the Prussians at Ligny. To do any of this, reinforcements were required, and reinforcements should be at hand. D'Erlon's I Corps should by now be at Frasnes so Ney sent him an order to bring his corps to the battle at once.

The March of the I Corps

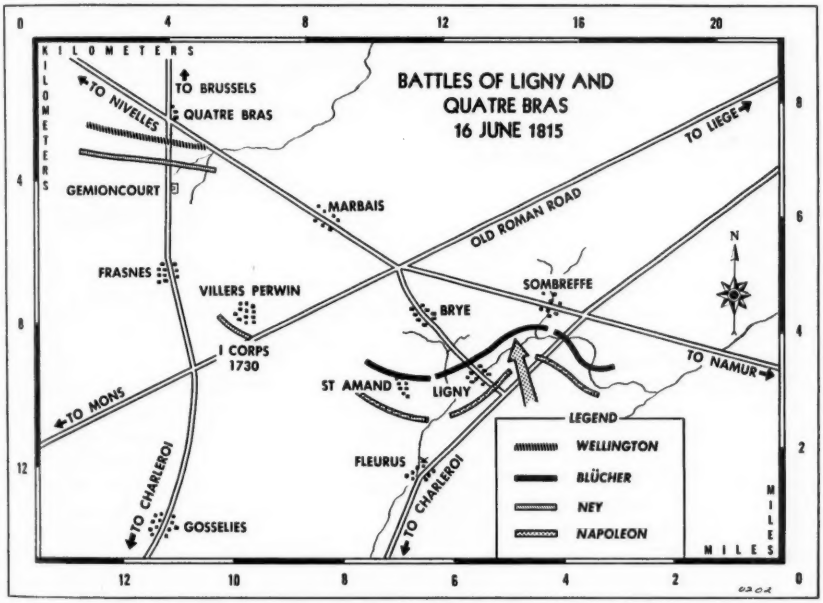
Unfortunately for Ney, the I Corps was not at Frasnes. During the morning, the corps had been marching northward along the Charleroi-Brussels High Road. Shortly before noon, D'Erlon had received an order from Ney instructing him to take up position with his corps at Frasnes, and the leading division of the corps—the 4th Division commanded by Durutte—was able to clear the village of Gosselies by 1500. Shortly after 1600, when Durutte's division was already past the intersection of the High Road with the Old Roman Road, D'Erlon, who was well ahead of his corps and had already reached Frasnes, received an order from Fleurus which caused him to change direction of the march of his corps and advance instead toward Villers Perwin and the battle of Ligny. As soon as the corps was on its way in the new direction, D'Erlon sent his chief of staff, Delcambre, to Quatre Bras to inform Ney of what he had done.

The Need for Reserves

At Quatre Bras, Ney was losing the battle. It was now nearly 1730, and he

was still awaiting the arrival of the I Corps. Instead of the I Corps, there arrived its chief of staff, Delcambre, who informed the marshal of the march of his corps toward the battle of Ligny and away from the marshal's sphere of operations. Realizing that without the I Corps he could not drive back the enemy vigorously before him nor move to envelop the Prussians, the crossroads at Quatre Bras, and here he was raging like a madman. Without pausing to consider, he sent off Delcambre at a gallop to catch up with the I Corps with orders to D'Erlon to halt his march toward Ligny and to bring his corps to Quatre Bras as fast as he could.

Delcambre overtook his corps commander soon after 1800, not far beyond



Ney flew into a terrible rage, stamping about and waving his arms. While Ney was still in this state, a staff officer arrived with Napoleon's order, sent off from Fleurus at 1500:

> You must maneuver at once to envelop the right wing of the enemy (Prussians) and fall on his rear. . . . Do not hesitate to carry out this order at once and direct your forces toward the heights of St. Amand and Brye. . . . The fate of France is in your hands.

What could Ney do about it? Indeed he was in a sorry position. His troops were exhausted, his attack had been brought to a halt, the enemy was still in possession of Villers Perwin, and delivered Ney's order. Although D'Erlon could see the battle raging around Ligny, not more than 2 miles from him, he preferred to obey the very definite and urgent instructions of Ney, his immediate superior, turn his corps about and move toward Quatre Bras, 4 miles away. He, therefore, reversed the I Corps and marched on Frasnes which he reached about 2100 and where he found Ney's defeated troops already bivouacking.

Such are the facts. The problem is "What was the order which caused D'Erlon's I Corps, during the afternoon of 16 June, to leave the Charleroi-Brussels High

Road and march toward the battle of Ligny?" There is no doubt that an order from Napoleon's headquarters at Fleurus reached the head of Durutte's division, which was then about ¾ mile north of the intersection of the high road and the Old Roman Road, shortly after 1600. What was that order?

Why the I Corps Turned

The evidence is very conflicting. D'Erlon himself states that he was not with his corps when the order reached Durutte's division but had ridden on ahead to Frasnes. Here he was overtaken by one of the Emperor's staff officers who showed him a message he was carrying to Ney. According to D'Erlon, the message instructed Ney to direct the I Corps on Ligny. The staff officer told D'Erlon he had informed Durutte, whom he had overtaken on the High Road, of the contents of the message, and that Durutte had already diverted his division toward Ligny. D'Erlon says that this happened "later than 1600." It has been seen that Napoleon sent no order to Ney during the afternoon of the battle of Ligny which specifically mentioned the I Corps. The order sent off by Napoleon from Fleurus at 1400 reached Ney between 1630 and 1700. In it Napoleon said, "Having driven the enemy back vigorously you will draw back toward us to join with us in enveloping the enemy forces in front of us here." Frasnes was just about 2 miles from Ney's position by Gémioncourt Farm in front of Quatre Bras, so it was possibly this order that the staff officer showed to D'Erlon, but it is difficult to believe that D'Erlon, Durutte, and the staff officer all considered it definite enough to divert the I Corps away from the battle of Quatre Bras to the battle of Ligny without a direct order from Ney.

It must be remembered that none of these officers knew that Ney had failed to drive back the enemy vigorously and possibly took it for granted that he had.

Napoleon himself always denied having sent any order to D'Erlon to march the I Corps to Ligny, but Baudus, a staff officer in Imperial Headquarters, relates that, when the battle of Ligny was at its height, Napoleon summoned him and told him that he had sent an order to D'Erlon to proceed with his whole army corps to the rear of the Prussian right. He (Baudus) was to carry the duplicate of that order to Ney immediately. Napoleon also gave Baudus verbal instructions to tell Ney that, no matter what the situation was on his front, this order was to be executed at once.

Baudus says he reached Ney about 1830 and found the marshal in a very excited condition. The reason for this has already been pointed out, for, only a half hour previously, Ney had learned that the I Corps had gone off toward Ligny and had also received Napoleon's order instructing him to maneuver at once to envelop the right wing of the Prussians and fall on their rear by directing his forces toward the heights of St. Amand and Brye. Napoleon had also said in this order that Ney was not to hesitate to carry it out. In fact, this order sent off from Fleurus at 1500 and the verbal instructions given to Baudus by the Emperor are very similar, and it is more than possible that the message Baudus carried was the duplicate of the 1500 order and not the duplicate of a separate order to D'Erlon to march the I Corps toward Ligny. On the other hand, Heymès, Ney's staff officer, declares that at about 1830 a staff officer arrived from Napoleon and told Ney that the I Corps was on its way to St. Amand in accordance with an order from Napoleon which he had handed to D'Erlon, but Heymès gives the name of the staff officer as Laurent and not as Baudus.

The Fate of France

De Salle, commander of the artillery of the I Corps, states in his *Souvenirs* that while the I Corps was marching toward

Quatre Bras, an officer of the Guard arrived from the Emperor with a message which was addressed to D'Erlon and read somewhat on these lines, "Proceed immediately with all your forces to the heights of St. Amand and fall on Ligny. You are about to save France and cover yourself with glory." This again is very reminiscent of Napoleon's 1500 order to Ney with its "Direct your forces toward the heights of St. Amand and Brye" and "The fate of France is in your hands," so it is possible that the message De Salle saw was the 1500 order to Ney and not a special order sent to D'Erlon. De Salle adds that D'Erlon misread *"sur la hauteur de St. Amand"* ("toward the height of St. Amand") for *"à la hauteur de St. Amand"* ("abreast of St. Amand") and took the order to mean that he was to direct his corps on a level with St. Amand. This explains why the I Corps approached the battle of Ligny from the direction of Villers Perwin, very much farther south than Napoleon expected to see the advance of Ney's troops.

Possible Routes

There is finally the question of time and space. There were two routes from Napoleon's headquarters at Fleurus to Ney's position by Gémioncourt Farm in front of Quatre Bras. There was the shorter and more dangerous route, direct across country to Frasnes, then north along the Charleroi-Brussels High Road, about 7 miles in length; or the longer and safer route, Fleurus to Gosselies and so up the High Road for the rest of the way, some 10½ miles in all. Of Napoleon's orders sent to Ney from Fleurus during the afternoon of the battle of Ligny, the 1400 reached Ney about 1645, and the 1500 about 1745, whereas whatever order it was that changed the direction of march of the I Corps reached Durutte at the head of the leading division of the corps about 1615. It is reckoned that the head of the I Corps was then 3 miles from Gémioncourt Farm and 5 miles across country from Fleurus. It is, therefore, obvious that the staff officers carrying the 1400 and 1500 orders did not take the shorter cross-country route from Fleurus to Gémioncourt Farm. In fact, it is known that they went by way of Gosselies, as the orders were addressed to Ney at that place, this being the latest location of his headquarters received by Napoleon's headquarters. Accordingly, the order shown to Durutte could have been the 1400 order sent on from Gosselies, a duplicate of the 1500 order carried by the direct cross-country route, or a separate order, addressed to D'Erlon, sent off from Fleurus immediately after the 1500 order and also carried by the direct route. Yet, if it was either of the last two, why did Ney not receive his copy of the 1500 order until close to 1800 or of D'Erlon's separate order until about 1830? Houssaye, the French historian and the foremost authority on this problem, is of the opinion that the order was a special, separate order sent to D'Erlon, and suggests that the staff officer carried it by the direct cross-country route and, having delivered it to D'Erlon, failed to go on to Ney to inform him of what he had done.

Preparation of Orders

Such is the evidence concerning the order which sent D'Erlon and the I Corps marching toward the battle of Ligny. It is conflicting and difficult to disentangle. However, before attempting to come to any conclusion, it is necessary to consider the conditions under which orders were prepared and dispatched at Imperial Headquarters. Compared with modern methods of drafting, reproducing, and dispatching, they were, of course, very primitive and open to many sources of error. Napoleon normally dictated the gist of the order, usually to the chief of staff. The latter made out a fair copy on his order pad, which thus became the original of the or-

der. The chief of staff next decided how many copies were to be sent—at least two, by different routes if possible—and then dictated the order to the secretary and assistants who each wrote a copy on his pad, one of the assistants being detailed to keep the file copy book. All except the file copy were then collected and so became the original and duplicates of the order. The orders were carried by mounted staff officers who worked on a strict duty roster, the next for duty taking the next order. Their mounts, of course, varied greatly in quality and fitness. (Baudus says that he was chosen out of his turn to carry the order to Ney because his horse was better and fitter than any of those of the chief of staff's officers, Baudus apparently being a staff officer to the Emperor.)

File Copies

The chief of staff—sometimes Napoleon himself—finally gave the staff officer his instructions regarding route and destination. It must be remembered that the orders, with which our problem is concerned, were written during a battle, in pencil, by persons some of whom at least were mounted while writing. The copies, which still exist and from which is obtained our knowledge of their contents, are the file copies. As can be seen, there is no guarantee that the copies actually dispatched were worded exactly alike, or that additions were not made to one copy, possibly just before dispatch, which were not entered on the other—or even in the file copies.

With this picture in mind, it is possible to attempt a conclusion.

Conclusion

It is considered that the order which was shown to Durutte shortly after 1600 on the afternoon of 16 June, when the head of his division was about ¾ mile north of the intersection of the Charleroi-Brussels and the Old Roman Roads, was definitely not the order dispatched from Fleurus at 1400, although it fits in best as to time. That order was too vague in its wording to cause either D'Erlon or Durutte to act upon without some further order from Ney. There thus remains either the 1500 order or a separate, special order addressed to D'Erlon. It is thought unlikely to have been the latter as no trace of it has survived as have the file copies of all orders sent to Ney's command on that day. Moreover, both Napoleon and D'Erlon, the presumed sender and recipient, deny its existence, and in all descriptions of its wording, it is very reminiscent of the 1500 order. It is, therefore, suggested that what both D'Erlon and Durutte saw was a duplicate copy of the 1500 order carried cross-country from Fleurus; that it was not an exact copy of the file copy of that order which has survived to this day but was more explicit as to the forces to be sent toward the heights of St. Amand and Brye, and may have even mentioned the I Corps by name, although that it is thought to be unlikely; that both D'Erlon and Durutte considered it quite definite enough to change the direction of march of the corps without reference to Ney; and that the staff officer bearing it, having shown it to D'Erlon and Durutte, considered his duty done for the time being and delayed at Frasnes, only going on to Ney sometime later. He may even have been the Laurent mentioned by Ney's staff officer.

For the lack of a nail, a shoe was lost.
For the lack of a shoe, a horse was lost.
For the lack of a horse, a rider was lost.
For the lack of a rider, an order was lost.
For the lack of an order, a battle was lost.

Hitler and the German Generals

Digested by the MILITARY REVIEW from an article by Colonel C. P. Stacey in the "Canadian Army Journal" April 1953.

IN HIS political testament, written just before his suicide, Hitler cursed the chiefs of the army who had failed to win his war for him. He cursed the generals and above all the General Staff. He wrote words which future German soldiers are likely to find hard to forget or forgive:

> In future may it be a point of honor with German Army officers, *as it already is in our Navy*, that the surrender of territory and towns is impossible, and that, above all else, commanders must set a shining example of faithful devotion to duty until death.

A great deal of information on Hitler's feud with his generals is now available to the public. Within the past few years the production of military memoirs has become a major German industry. Commanders like Guderian have told their own stories; staff officers like Westphal and Blumentritt and Speidel have written about their chiefs; at least one prewar military attaché—Von Geyr—has written about his experiences in the years while the world was sliding down the slope; and one Englishman, Desmond Young, has taken the trouble to put together a careful if perhaps somewhat idealized portrait of Erwin Rommel, whom he fought against in the Western Desert. It is a fascinating group of books for the student of history, or politics, or humanity, for these German generals are by no means all cut to one pattern. They differ radically, one from another, in their interpretation of events and men's parts in them. However, they all agree on one thing: they blame Germany's misfortunes, including her military defeat, primarily on Adolf Hitler. They return with interest the contempt and hatred for the generals which Hitler expressed in his testament.

All of the generals' books are in some degree addressed to the countries of the West. It was to be expected that they would sound a strong note of self-justification. Broadly speaking, these memoirs propound two theses: first, the General Staff, far from being responsible for the outbreak of the war in 1939, was opposed to it; second, the military defeat of Germany was largely due to Hitler's amateur strategy and his disregard of professional advice.

Let us examine these propositions in the light of the evidence.

Opposed to War

That the generals, not to a man, but most of them, were opposed to the resort to war now seems indisputable. Even Guderian, who was probably more at home in the Third *Reich* than many of them, testifies to this (at one point he says that it was because Germany could "achieve its national aims" without war, at another he admits, like the other witnesses, that it was because the German forces were not considered ready). The dominant motive was certainly military expediency, not humanitarianism.

Chief of the General Staff

Through the picture of the prewar years which we build up from these books moves the tragic Hamlet-figure of Colonel General Ludwig Beck, Chief of the General Staff. Westphal writes of him with deep respect, Geyr with actual affection. Guderian, the creator of the German armored forces, found him professionally unsympathetic to his plans for organizing panzer divisions; he says of him, brutally but probably truly, "He was by nature a conservative and a procrastinator, and it was this aspect of his character that was his undoing." Beck certainly considered Hit-

ler's leadership disastrous for Germany, but he never managed to do anything really effective against it. When he resigned in 1938, after an unsuccessful protest against the proposed enterprise against Czechoslovakia, he wrote, "In order to make our position clear to the historians of the future and to keep clean the reputation of the High Command, I wish to place on record that I, as Chief of the General Staff, have refused to give my approval to any war on behalf of the National Socialist adventurers. A final German victory is an impossibility." The conspirators of 20 July 1944 proposed to make Beck head of the state in place of Hitler. When it was clear that the bomb exploded that day had not killed the dictator, Beck was given a pistol and invited to shoot himself. It was grimly typical of his career that he failed even in this, and was finished off by General Fromm, who was urgently bent on covering up his own share in the plot.

Influence of Munich

Beck had been succeeded as Chief of Staff by Franz Halder. There is considerable evidence to indicate that the latter was in the act of organizing a generals' *putsch* to depose Hitler and end the danger of war over Czechoslovakia when Chamberlain and Daladier, by their surrender at Munich, cut the ground from under his feet. The *putsch*, if attempted, might have failed, but the diplomatic victory at Munich brought Hitler vast prestige, and from that time onward it is very doubtful whether either the rank and file of the Army or the nation at large would have followed the generals in any movement of protest.

The opposition revived actively only in the later stages of the war, when it was clear to all competent observers that Hitler was leading Germany to defeat. It was in these circumstances that Rommel—incidentally not a General Staff officer—who had never questioned the dictatorship while it was winning victories, joined the 20 July conspiracy. Rommel had been "unpolitical" (he had commanded the *Führer's* escort battalion and was obviously acceptable to the Party, but Young pretty well disposes of the old charge that he was a Nazi); and it should be noted that several of our authors—notably Guderian and Blumentritt—consider, or affect to consider, that the statement that soldiers have no concern with politics is enough to justify the Army's general failure to take action against Hitler. That soldiers take their orders from the civil government, and have no business questioning the orders they get, is sound doctrine in democratic societies; but is it sound doctrine in a society like Hitlerite Germany, undergoing a revolution of destruction? Geyr and Westphal, the most sophisticated of this group of writers, now think that it is not. It is a question that soldiers in the English-speaking countries, luckily for them, have not had to face in modern times.

Hitler's Strategy

What of the second thesis—that the war was lost, in effect, by Hitler's interference with his generals' conduct of operations? This is the crude form in which it is going to strike the German public, although the generals seldom if ever state it quite so bluntly, and the adult Westphal definitely says that the war was not lost merely by bad leadership. ("This war . . . was lost before it started, both politically and because of the hate which Hitler had aroused among our neighbors. Militarily it could not be won, because of the overwhelming superiority of the total enemy strength. . . .") It seems likely that Hitler's strategy is to be the counterpart for the second world war of the "stab-in-the-back" legend of the first. There is much more truth in the contemporary story than in the earlier one, but it is still

subject to qualification. In the long run Beck turned out to be right, and Germany went down to defeat; but in the short run, and for a considerable time, Hitler's judgment was better than his generals'.

Fatal Miscalculation

Against their advice he reoccupied the Rhineland and destroyed Czechoslovakia, and the democracies did nothing. Geyr, from his post in London, told the Nazis that if pressed too far Britain would fight—and in the end the United States would fight beside her. When, in 1939, Hitler attacked Poland in the belief that Britain and France would not dare to go to war, he made his most fatal miscalculation; but before it came home to roost he had a dazzling moment of triumph. The brilliant plan for the 1940 campaign in France was not made by Hitler—Blumentritt, Guderian, and Westphal all testify that its author was Manstein, chief of staff to Rundstedt, then commanding Army Group "A"; but Hitler accepted it and saw to it that it was adopted. Guderian says that nobody believed in a successful outcome except Hitler, Manstein, and himself. The event justified their faith, and raised Hitler's prestige to tremendous heights; even though the generals unanimously state that he was responsible for the orders holding back the tanks, which enabled the British Army to escape through Dunkerque. It would not be difficult to compile a fairly long list of decisions, taken by Hitler in the early years of the war, which were opposed by the professionals but turned out to be sound and profitable from the German viewpoint.

Hitler's Formula

In 1941 came the attack on the Soviet Union. That Hitler undertook this is surely the best evidence that he was mad. From this moment the balance shifted against Germany, the strategic and tactical disagreements between Hitler and the generals increased, and the dictator made more and more wrong decisions. There are those—usually not people who had contact with him—who argue that he was something of a strategic genius, with a definite and effective theory of modern war. It is scarcely necessary to accept this to explain his early triumphs. Hitler's formula was simple: it was in general mere boldness, the unswerving courage of the fanatical or the deranged. Moreover, this formula worked well, as it always will, against enemies who were ill-prepared, divided, and weakly led. It did not work after the allies had organized their strength and found strong leaders. However, Hitler did not change the formula. His policy was still the bold offensive, the frontal attack, the refusal to give ground. One remembers Stalingrad, Mortain, the Ardennes—and a hundred occasions when the *Führer* rejected the recommendations of his generals for timely withdrawals. If he had taken their advice at this stage, Germany could not have won the war, but she might have contrived to lengthen it considerably.

Being a member of Hitler's military entourage was an exhausting business for a general who was not prepared to be a mere yes-man. One such was Guderian, who was appointed by Hitler "to perform the duties" of Chief of the General Staff the day after the bomb went off (an appointment which he obviously finds it a bit embarrassing to explain). Here is his description of a conference in February 1945, in which, for once, he won his point—the importance of placing an experienced general at the elbow of Himmler, whom Hitler, amazingly, had made commander of an army group:

> . . . So it went on for two hours. His fists raised, his cheeks flushed with rage, his whole body trembling, the man stood there in front of me, beside himself with fury and having lost all self-control. After each outburst of rage Hitler would stride up and down the carpet edge, then suddenly stop im-

mediately before me and hurl his next accusation in my face . . .

Suddenly Hitler stopped short in front of Himmler and said: "Well, Himmler, General Wenck will arrive at your headquarters tonight and will take charge of the attack." . . . Then he sat down in his usual place, called me over to him and said: "Now please continue with the conference. The General Staff has won a battle this day." And as he said this he smiled his most charming smile. . . .

The Outcome

The reader of these volumes may find it interesting to speculate on what the German people will make, in the end, of this continuing controversy between the living and the dead. One thing at least the anxious Western observer can note with satisfaction: the feud may help to stifle the growth of dangerous historical legends. The generals' abuse should weaken the case of those who may strive to make Hitler into a national hero; and on the other hand the memory of Hitler's victories and his hatred of the generals may militate against acceptance of the theory that the General Staff could have won the war if only Hitler had not interfered. Neither of these tales would be favorable to the peace if allowed to flourish.

Britain is in Danger

Digested by the MILITARY REVIEW from an article by Rear Admiral A. D. Nicholl in "The Navy" (Great Britain) February 1953.

IN THE steps which Britain is taking to build up her defenses there is a vital gap. Britain has no naval fighter which can deal with the modern jet bomber.

Naval Fighters Are Required

There are a number of limiting factors in the pace with which our defenses can be built up, and the scheme for giving super-priority to the provision of certain weapons, particularly aircraft, has been designed to remove all obstacles as far as possible which might stand in the way of rapid production of the most effective weapons in our armory. There is justifiable anxiety over Britain's fighter defenses. Our new fighters the *Swift* and the *Hunter* are in the super-priority list and, to fill the gap before they are ready, *Sabre* jets have been obtained from America and Canada. However, no such urgency is being applied in the case of naval fighters, and the omission of naval fighters from the super-priority list is clear evidence that there is no realization of the acute peril Britain would face if she should be attacked before she possessed a naval fighter of superior performance to the modern bomber.

Far from there being any anxiety over the position, there is evidence that the naval fighter is the Cinderella in air production. The naval fighter required for the task is not yet in production and it will not be in service for a considerable time unless special steps are taken. Very recently there was an extension of super-priority to cover the latest 4-jet bombers and three types of civil aircraft. There were very good grounds for this being done, but the effect of this widening of super-priority will be to retard the production of naval fighters even further, for every aircraft firm in the country which is building naval fighters is also engaged on one or more of the super-priority aircraft, and naval fighter production is bound to suffer.

Dependence on Imports

There is wide realization in the country, and it cannot be stated too often, that

if the flow of sea-borne imports to this country could be interrupted by an enemy for only a few weeks, Britain would be defeated by starvation, even though her armies and air force had not been conquered.

There is also no dispute that fighter protection against attack by bombers on our shipping in the Atlantic can only be provided by sea-borne fighters; that is, fighters operating from carriers or other ships. It is impossible for land based fighters to provide protection for convoys more than a comparatively short distance from the coast.

Experience of Two Wars

The experience of two world wars showed how nearly we came to defeat in the Atlantic, and experience in the last war, particularly with the convoys to Malta and the Soviet Union, showed the helplessness of merchant shipping in the face of air attack unless they had fighter protection. Once fighter protection was available the situation was completely altered and not more than two or three ships so protected were sunk by enemy air attack during the rest of the war.

All-Out Air Attack

It is not giving information to the Soviet Union to say that at the present time the quickest way to knock Britain out would be an all-out air attack on her shipping. With the greatly increased performance which the jet engine has given to the modern bomber there has been an enormous increase in the danger of air attack on shipping. Twin-jet bombers of the *Canberra* type can range over the Atlantic at great height and nearly as fast as the most modern fighter; with modern radar they can detect ships at great distances and their capabilities for reconnaissance and for co-operation with submarines and for air attack on the ships are enormously greater than anything which was experienced in the last war. The menace of the 4-jet bomber would be even greater. Aircraft are always faced with certain difficulties in picking out land targets, even with the finest radar it is hard to locate the actual spot which it is desired to hit with the bomb, and there is much the defenders can do to protect themselves. A ship at sea on the other hand is the perfect target, it can be detected by radar without any element of uncertainty at many miles range and nothing can stop an efficient enemy from closing in on it and hitting it—except fighters.

The Soviet Union already possesses a twin-jet bomber of the *Canberra* type—the *Tu-10*—and a 4-jet bomber. The Soviets also have a strong maritime air force and must be assumed to have taken careful note of one of the lessons of World War II, namely that airmen trained to operate over the sea against maritime targets are many times more effective than those trained to work over the land. The *Luftwaffe* pilots who attacked the *Illustrious* in the Mediterranean were skilled and highly trained but they failed to sink her because they were not accustomed to working over the sea and did not employ the right tactics or a proper co-ordination of the use of bombs and torpedoes. On the other hand, the Japanese pilots who sank the *Prince of Wales* and *Repulse* in the Far East were trained naval airmen.

Overestimated Aerial Bombing

The last war showed that both sides overestimated the effects of aerial bombardment, and the prewar British plans for dealing with air raid casualties were based on estimates which proved to be far in excess of any the country actually suffered. Neither the German bombing of Britain nor the allied bombing of Germany cracked the morale of the respective civilian populations, and any estimates of what might have happened if attacks had been heavier remains in the field of con-

jecture. The recent British atomic test has confirmed that Britain's civil defense plans are progressing on the right lines. Britain's fighter defenses, antiaircraft defenses, and guided missiles are daily becoming more formidable. The task of knocking Britain out by air attack, even with atom bombs, is, therefore, daily becoming more difficult. Each of the countries in the Atlantic alliance thinks that it may be the first object of attack if the Soviet Union should embark on aggression. There is justification for these views in each case, and certainly in the case of Britain, which is not only the most highly concentrated production center in the alliance, but is also the spring-board for counterattack. The Soviet Union might well consider that the best way of defeating the West would be to knock out Britain, but the Soviet Union would not need to take on the bristling air defenses of the British Isles in order to achieve this; it would only be necessary to sink Britain's shipping in the Atlantic. Even the Soviet version of the *B-29* has the range to fly to the middle of the Atlantic and back from the Soviet Union, and unless and until our shipping has the protection of high performance fighters, it would be at the mercy of the Soviet bomber forces. Convoy, evasive routing, and antiaircraft escorts would be practically valueless.

Balancing the Requirements

It is not a question of accelerating the production of naval fighters at the expense of some other aircraft. The requirement stands on its own as one of Britain's vital defense needs. Defense and national solvency go hand in hand and it is the custom for the Government to decide on the lump sum which can be afforded for defense, and within that total the various requirements and allocations between the services, civil defense, research, and other requirements are determined by discussion. In practice it works out that if you get more of one form of defense, you get less of another. As a result there will be a tendency for many to think that greater priority for naval fighters, which among other things would mean more money for them, could only be given at the expense of some other form of defense—and few things beget a greater crop of letters to the press than an argument over air priorities. Britain's need of naval fighters is as vital a necessity as, say, the police force; and no one would suggest a cut in the police vote to provide the fighters.

Finally, the naval fighter requirement is an indispensable part of our ability to counterattack. It is obvious that a strong bomber force able to deliver atomic attack would be a most powerful deterrent to a would-be aggressor and there is every justification for building up our bomber force as fast as we can. Counterattack, however, requires a number of components. The weapon is the bomb and the first essential, therefore, is that the weapon should be a powerful one. To get the weapon on to the desired target requires high performance bombers, skilled, highly trained crews, and instruments of great precision. Behind the bombers there must be efficient maintenance services, a secure base, a production line, and so on. However, the most important single component is the fuel for the bombers, and the fuel comes across the sea. If it is not protected by naval fighters, it will not arrive.

The same argument applies with equal force to the tanks, the air defense fighters, the essential road transport, and other users of oil and gasoline of all the Western European countries. Our ability to fight at all depends on the safe passage of the tankers across the sea.

It is for the authorities to decide whether the present lack of high-performance naval fighters is an acceptable risk, but it should be fully realized that until we have them, Britain, indeed Western Europe, is in danger.

Mobility and Fire Power

Digested by the MILITARY REVIEW from an article by Major P. Martel in the "Canadian Army Journal" April 1953.

The ultimate object of mobility is to obtain superior power in battle.—Maurice.

MOBILITY is so important to the successful conduct of operations that prior to World War II it was listed as one of our principles of war. In the new list of principles, mobility has not been included; it has been replaced by flexibility, but it is nevertheless an integral part of concentration of force. Obviously, no concentration can be effected unless the commander is able to move his troops. As a matter of fact, it is almost impossible to speak of concentration without thinking of mobility, and the ultimate end of mobility is concentration.

Speed and mobility are not necessarily synonymous. Marlborough, for instance, is cited as an expert in the art of mobility because he moved his troops from the Netherlands down to Bavaria with efficiency and success. Many of Napoleon's campaigns are a series of brilliant maneuvers. In more recent history the American Civil War is often quoted. By the standards of modern methods of transportation the movement of troops under Marlborough, Napoleon, or Jackson was slow. So why can we say that these commanders achieved mobility?

Mobility

Mobility is a relative concept which may be defined as the ratio between the ability of a commander to move his troops and the ability possessed by the commander of the opposing forces. To illustrate this idea, it is possible to imagine a body of troops being moved in exact synchronism with a similar body of enemy troops; whatever the speed of movement may be, in neither case will the ultimate end of mobility—concentration of superior power—be achieved. On the other hand, it is conceivable that a commander may have all his troops mounted on trucks against an enemy on foot and that notwithstanding a series of movement carried out at high speed, he could still be defeated by a heavier concentration of the enemy. Mobility is, therefore, the ability to move troops not only rapidly but more rapidly than the opponent toward the objective.

Essentials of Mobility

What, then, is at the root of mobility? In my opinion there are four factors which are essential: intelligence, staff work, generalship, and freedom of movement.

Intelligence and staff work need hardly be explained. It is obvious that if the ultimate end of mobility is "to obtain superior power in battle," good intelligence of the enemy's dispositions and intentions is needed. Similarly, without proper organization and orders a movement of thousands of men would end in complete confusion.

Generalship in relation to mobility is harder to define. It is one of those imponderables based on ability to make decisions from scanty information, act quickly when a more timorous mind would wait, select the proper object, and care for the security of the troops, and at the same time gamble on the results. With respect to mobility, the characteristic of generalship which is of paramount importance is the selection of the objective so that all forces can be brought into action before the enemy has time to counteract.

Freedom of transportation is the aspect of mobility which is seldom emphasized adequately. It is not sufficient to carry

the men and their weapons. All the impedimenta of war also have to be supplied. For instance, an infantry division has some 3,200 vehicles which are road bound. They have a cross-country performance, but at a considerably reduced speed. All of these vehicles are needed to supply the division with ammunition, gasoline, food, clothing, and other items for a given period of time. Only by keeping the supplies moving can penetration be exploited.

Need for Air Superiority

The advent of the aircraft has made movement by road a nightmare for the army which does not have air superiority. The allies in 1945 waged a war in which they had complete air superiority over the battlefield and its approaches. That this will not be true in another war is almost a truism. Tactical and strategic bombardment of supply lines and march columns can harass an enemy to the point of breakdown as was shown in Africa during Rommel's retreat. It was proved again during the allied invasion of Normandy.

Intelligence is a field of endeavor which is still wide open to scientific development. New methods of data handling and sorting, as well as new methods of listening to the enemy's activities, are needed if the speed available in other arms and services is to be of any use. However, freedom of the road is the aspect of mobility which has been the most altered by the advent of fire power in all its forms.

New Concepts

For centuries mobility was simply the movement of men on foot, quite often in plain view of the enemy. The advent of fire power, while it did not detract from the soundness of the principle, did, however, force the commanders to devise new means and methods to retain their ease of maneuver.

According to General J. F. C. Fuller in his book *Armament and History:*

> Movement has been called the "soul of war," which is true, for movement is to organization what range is to weapon power—it is the governing element. Thus when the energy from which the military movements were derived was generated by muscle power, because the muscular energy of the horse was greater than that of man, tactical organization was built around that animal. This remained true so long as the range and volume of fire were limited, and it was not until the introduction of the rifled musket that the holding power of infantry became so great that cavalry movement was immobilized. When this occurred, as it did during the nineteenth century, tactical organization became decadent. It was based, not on power to move, but on power to hit; therefore, volume of fire became the be-all and end-all of the military organizer.

From Men to Machines

Not so many years ago the strength of armies was measured in numbers of men only and the importance of a country in the international field was almost proportional to the number of sabers it could raise. The impact of gunpowder and of the industrial revolution was to change the emphasis from men to machines. Gustavus Adolphus in the early seventeenth century opened wide the door by deploying artillery in the field, but it was not until two centuries later that the gun became a major factor in deciding the issue of battles, despite the evidence offered by the Napoleonic wars.

Use of Artillery

In the twentieth century, masses of artillery were often used to regain the advantages lost by the offensive to fire power. Following Napoleon's lead, holes were blasted through the front in an attempt to pave the way for the infantry. This method was used with success in the last two wars. However, it seldom enables the break-through which is so essential to mobile warfare. An inherent handicap of extensive use of artillery is that it plows the ground so much that rapid advance is not always possible and the enemy gains sufficient time to recover unless the first waves ride with the barrage regard-

less of casualties. This handicap is even more pronounced in the case of tactical air bombardment prior to an attack.

The latest war machine used in ground attacks in an effort to defeat fire power and gain mobility is the tank, which Nazi Germany coupled with air power for their rapid advances in Poland and northern France. The first reaction to German success was that the offensive had regained its superiority over the defensive. The Desert and Russian campaigns helped considerably to dispel this notion. It was then proved that deep penetration does not necessarily automatically mean retreat.

Aircraft in its Infancy

Air power has brought a third dimension to war. Originally the aircraft was used to increase the range of cavalry and was compared to the eyes of the commander. Later it became a weapon of war when it was loaded with bombs. As such it is an extension of artillery capable of engaging targets hundreds of miles behind the enemy lines, but far more dependent upon external conditions than artillery. The proper use of aircraft as a weapon is still the source of considerable discussion. As a troop carrier, the aircraft and its companion, the helicopter, are still in their infancy.

Modern Transportation

Along with the development of fire power the discoveries of steam- and later of gasoline-powered vehicles have caused striking changes in the mobility of armies. While from the earliest times the movement of troops had been limited to the distance that a man or horse could cover and still be capable of fighting, the use of the railway increased considerably the pace of strategical maneuver; paradoxically, however, the range of tactical movement became limited by the newly gained fire power. Although it became possible to move larger masses of men and their supplies, the end of the railway line was the limit and the sum effect was a decrease in the mobility of operations, with the exception of theaters of war where the ratio of man to space was so small that flanking was still possible.

Armies have treated the motor vehicle as previously they treated the railway: as a means of amassing their supplies more rapidly. Because of the greater ease of transport, they have unfortunately at the same time increased considerably the mass of stocks needed on the front lines. The result: they became as road bound in 1945 as they were rail bound in 1918. The striking head of an armored division may be able to penetrate deeply and bypass obstacles, but it cannot push on because its tail is stuck until the obstacle has been removed.

Today's Weapons

Weapons available today, guns and airplanes, are relatively efficient for the purpose of preventing the enemy from concentrating his troops. Artillery, from a close support point of view, is well suited to harassing zones of concentration prior to attack, while air power can prevent the supplies from reaching the front. Strategic bombardment prior to D-day was successfully diverted to destroy bridges, rail centers, and roads leading to the Normandy beaches, and it is generally conceded that much of the success of the invasion was due to the inability of the Germans to move troops in sufficient number and in time.

At the lower level, the isolation of the battlefield was one of the missions of the tactical air force used first with great success by the Germans in the early stages of the war and later by the allies after they had defeated the *Luftwaffe*. However, in all cases of success by the tactical air force, air superiority and clement weather go together. The Ardennes offensive is a striking example of what havoc weather can play with a tactical air force.

Importance of Ground War

It would appear that the Soviet concept is that war will be decided on the ground and that strategic bombing, although it may help win a much prolonged war, will not remedy the lack of supplies over the battle area. They do not appear to consider the destruction of large cities advantageous. Furthermore, problems of reconstruction are so large that rehabilitation during the peacetime years becomes a staggering effort. Many centuries ago, this was expressed by Sun Tzu, the great Chinese general, as follows: "In the practical art of war, the best of all is to take the enemy country whole and intact; to shatter and destroy it is not so profitable."

These Soviet concepts are somewhat vindicated by Germany, which survived several years of the most intensive bombing and was finally defeated because the lines of communication to the front were broken. They are also a confirmation of Clausewitz' theories. It might be more profitable to concentrate our efforts in preventing the supplies from reaching the front lines than in attempting the destruction of factories when we know very well that stock piles sufficient for several years of war will be in the hands of the enemy.

Effect of New Weapons

Obviously these concepts are based on experience obtained during the last war and may not take full account of the power of the atom bomb. However, it is reasonable to assume that it would take several months before the effect of atomic bombing would be felt. During that time, battles will have to be fought—battles which, if lost, might mean the end of the war. Furthermore, because of the Iron Curtain, very little is known about profitable targets, thereby reducing the effect of strategic bombing by denying its first and essential need: a target.

A new weapon is now appearing on the scene which might very well revolutionize air and land warfare; the guided weapon. A guided missile is free from weather obstruction, and does not need air superiority or the immense investment for airports and the associated infrastructure.

Guided missiles are but one more step taken along the path of weapon development. According to General Fuller:

> . . . Today, as yesterday, perfection is sought through an ever increasing range of action, striking power, accuracy of aim, volume of fire, and portability, or now better defined as "power-propelled means of mobility." The sole fundamental difference between present and past development is that today it is scientific, whereas formerly it was haphazarded or by rule of thumb.

Development of Guided Missiles

The German lead in the field of guided missiles has now been reduced. All nations are pouring millions of dollars into research and development of more accurate missiles. The original weapons, the *V-1* and *V-2*, launched by the Nazis in 1944, each carried a ton of explosive and are now obsolete. They were, nevertheless, responsible for more than a million wounds, the killing of close to 100,000 people, and the destruction of nearly a million homes.

The German use of the *V-1* and of the *V-2* was a premature effort forced upon them by the almost complete collapse of the *Luftwaffe* on the Western front and, as a premature effort, it was relatively ineffective. It must be remembered that any one of several scores of heavy bombing raids against German or Japanese cities dropped a greater weight of explosives than the Germans delivered by the entire *V-2* attack against London. In addition, the bombs were dropped with a very useful degree of precision while the *V*-weapons could hardly be aimed at anything smaller than a city. In spite of their indecisive role in World War II, the German weapons did dramatize the potential military usefulness of high-speed, unmanned, jet-propelled missiles, if they can be

guided with sufficient accuracy to hit a reasonably small target.

It was only the retaliation complex of Hitler and his indecision early in the development stages of the weapons which prevented them from attaining their full efficiency. As a matter of fact, if the Germans had succeeded in perfecting this weapon 6 months earlier and had selected the Portsmouth-Southampton region as a target, the invasion of Europe would have proved exceedingly difficult, perhaps impossible.

The German Missiles

The German *V-1* and *V-2* were especially intended as extensions of artillery. Since then, several years of intensive research have no doubt produced weapons which are considerably more accurate and have greater range; it should not be hard to visualize a tactical missile capable of reaching a target some 150 to 200 miles behind the front or which would prevent any road traffic on a given section of the front. Other profitable targets would be zones of concentration, bridges, railroad yards, and the like.

The German *V-1* had a 50 percent zone of some 14 to 16 miles at maximum range. It was basically a pilotless aircraft flying at a low altitude and relatively high speed. Fortunately for the allies, it was also an ideal antiaircraft target and during the last week of its employment more than 80 percent of the *V-1s* launched were destroyed by artillery fire. On the other hand, no defense has yet been devised against the *V-2*. Although the *V-2* had no greater accuracy than the *V-1*, it gave no warning of its approach and even today would be an efficient weapon against large area targets.

The New Missiles

For security reasons, very little is known of the performance of the new guided weapons. It can be surmised, however, that every army is striving for a family of weapons capable of tactical and strategical bombing against pinpoint targets. Accuracies of the order of .1 percent of range should easily be achieved by missiles large enough to carry an atomic warhead.

These missiles, when available in quantity, will be sufficient to engage any target, whatever its size, and place the commander in a situation where he might control any enemy movement on his front. From the point of view of isolating the battlefield, the surface-to-surface missile will be capable of bombarding the enemy lines of supplies as well in daylight as at night, as well in rain as during sunshine. For the first time in history, a weapon will be available which will enable a commander to completely block a given road. It may be the answer to human-sea tactics.

The Changing Picture

With the advent of the guided weapon, two aspects of mobility will need a complete revision: intelligence and transportation. Intelligence with the greatest degree of precision will be needed for the direction of the missile toward profitable targets. In the same way that strategic bombardment becomes useless unless the targets are well defined, the short-range and long-range guided missile will be superfluous until some means of detecting troop concentration, well-used roads, and supply areas have been found.

An obvious limitation in present-day tactical air warfare is the lack of knowledge of the enemy's disposition. For instance, we have seen in Korea a war where the United Nations had complete air superiority but nevertheless were incapable of influencing to a controlling degree the enemy's flow of supplies and personnel to the front lines. Furthermore, the exact position of the enemy units for tactical operations had largely to be surmised

from piecemeal reports obtained by patrols, guerrillas, and air photos.

According to Marshal Foch in his *Precepts and Judgements:*

> In Napoleon's time, fighting dispositions were taken at a very short distance in presence of an enemy one could easily see, the power and situation of whom could easily be measured. Later, in proportion as the range and power of arms increased, distances increased too; troops had to look for shelter and to adopt a more and more dispersed order. Still, the smoke produced by powder enables the general to reconnoiter, at least partly, the first dispositions of the enemy. The latter disclosed by his fire the positions he was occupying. Smokeless powder has changed the picture and made the unknown both complete and lasting. Going into action today reminds one of a struggle between two blind men, between two adversaries who perpetually seek each other but cannot see. Shall our new method, then, consist in rushing straight on, or to the right, or to the left, at random? Shall we allow the enemy to throw his arm round our body, to grasp us completely, without our retaining the possibility of first grasping him ourselves, and of striking hard? Obviously not. In order to conquer that unknown which follows us until the very point of going into action, there is only one means, which consists in looking out until the last moment, even on the battlefield, for INFORMATION . . .

New Fields of Research

An immense field of research is opened where men of great imagination rather than great technical knowledge are needed. Devices which can keep constant watch over hundreds of square miles day and night are needed before full benefit of newly found accuracies can be realized. We already know the possibilities of radar; what is needed now is detection at very long range.

Modern techniques permit the transmission of any kind of data almost instantaneously around the world. It is possible, for instance, to transmit pictures of a baseball game held in New York to a television screen in Los Angeles. Although it is obviously hard to set up a television camera behind the enemy line, it might be possible to fire "listening shells" which could discriminate between the noises of trucks, guns, and the like, or it might be feasible to have a high-speed missile, armed with a camera containing infrared film, patrolling the enemy lines. These suggestions may seem fantastic, but in the light of modern science they are not more of a dream today than proximity fuzes were 10 years ago.

The most immediate result of the range and accuracy available through this new type of fire power will be the spreading of the concentration, supply, and headquarters areas over distances unheard of before. Future land warfare will have to be tailored to the power of a guided weapon armed with an atomic warhead and will be characterized by great depth of deployment. In a future war the combat zone can be expected to be of the order of 100 to 150 miles.

Camouflage will become easier on account of the lower density of troops per unit area and, therefore, intelligence will become more arduous.

Problems Raised

The problems raised are not insurmountable but certainly need a new angle of attack. The first conclusion which can be reached is that a modern army should be completely independent of roads, at least for 50 to 70 miles behind the front lines and the second, which is also a deduction from the first, is that, to alleviate the difficulties, the minimum possible number of men, of equipment, and of supplies should be allowed to enter not only the front lines but also the full depth of the combat zone.

Independent of Roads

Modern armies will need to be independent of roads because roads and bridges are a primary target for air support, piloted or not. There are three ways to achieve this independence. The first, which is also the most ancient and most reliable, is the foot. The major advantage of marching is ease of camouflage and flexibility.

Second, the motor vehicle can be put on tracks and driven across country. While there will obviously be a tendency to keep on roads, this method permits a great deal of independence from delays resulting from road failure. It is necessarily more subject to location from the air and, therefore, more vulnerable if the enemy has air superiority. It is considerably limited in its cross-country performance by ditches, small streams, and rivers. Barring the maintenance aspect, it is far less costly in manpower.

Third, there is a method of transportation which has not been fully developed but which should be capable of great success—the helicopter. The helicopter is not only independent of the road situation, but also does not leave any line or traces on the ground to direct the enemy. If the helicopter cannot be used in daytime more than a truck can on account of enemy air superiority, it comes into its own element at night. It is completely independent of terrain features and its use should decrease the manpower required to build bridges and keep the roads in repair. The tactical implications of the general use of this vehicle will be considerable. For instance, natural features of terrain will lose their importance and more emphasis than ever will be needed for all-round defense. The helicopter will also have a negative influence on guided weapons by depriving them of one of their targets—bridges and crossroads.

The second conclusion that can be reached is that the transportation or freedom of the road aspect of mobility should be minimized by reducing to a bare minimum the number of men and equipment needed at the front lines. Equipment should be designed with simplicity and reliability in sight even at the expense of accuracy, thus reducing the amount of maintenance needed and consequently the quantity of spare parts and repairmen.

Area Weapons Needed

As it is more than likely that the enemy tactics will be to attack by mass-waves of men, it should be noted that area weapons are needed more than accurate guns. Accuracy, when obtainable, is not to be neglected, but should not be aimed at for accuracy's sake.

Weapons cheaper to make than to repair are the type needed so that when they fail they can be thrown away and replaced by new ones, thus obviating the need of maintenance in the combat zone. A reduction of one man in the front line means a decrease of three in the communications lines. Accuracy should be reserved for long-range weapons which can be sited well back, where resources for fine adjustments are more considerable.

Conclusion

In conclusion, a summary of the aspects of mobility and the effect upon it of fire power might be profitable:

1. Absolute speed, although available today, is not the end-all of mobility.
2. Because of tactical air forces and the coming guided weapons, roads and bridges, either permanent or temporary, will become increasingly difficult to use both night and day.
3. New means of intelligence and transport are needed.
4. The guided missile will force spreading the zones of concentration over large areas, thus altering considerably the usual demands on transport.
5. The number of maintenance men needed in the combat zone should be reduced by emphasizing reliability and simplicity in the military characteristics of new weapons.

Reflections on Anzio

Digested by the MILITARY REVIEW from an article by Lieutenant P. Coakley in "An Cosantóir" (Ireland) June 1953.

THE landings which took place at Anzio on 22 January 1944, were an attempt by the United States Fifth Army to break the deadlock on its main front, some 70 miles to the southeast. It was an attempt to exploit the open flank which allied naval and air supremacy imposed on the Germans in the Italian theater of operations.

If we study this operation against the background of the principles of war, we will arrive at conclusions of value to students of military history. These conclusions are lessons in the broad strategic sense. To be gleaned as a second harvest, as it were, are many more intimate lessons in minor tactics of benefit to all potential commanders of combat units.

Maintenance of the Aim

Maintenance of the aim may be termed the first and most important of the principles of war as now recognized. *Morale, offensive action, security, surprise, concentration of force, economy of effort, flexibility, co-operation,* and *administration* are clearly factors which affect the aim in any battle. Therefore, if, in the confusion of battle, the aim is lost sight of, all is in danger of being lost.

The aim of the Italian campaign as a whole was "to engage and attack—always attack, as large a part of the German Army as possible, *in order to prevent the enemy from bringing his full strength to bear against the allied fronts in France and Russia.*" General Eisenhower's instructions from the Combined Chiefs of Staffs were "to prepare plans for the next mission, which was to eliminate Italy from the war and *contain the maximum number of German divisions.*" Italy eliminated herself from active participation in the campaign on 8 September—the eve of the Salerno landings. This reduced the terms of the aim to the containing of the maximum number of German divisions.

In the strongholds of the Gustav Line the German armies were economizing in force and were, in fact, "containing" the maximum number of allied divisions. The tail was, to a certain extent, wagging the dog. The military necessity was to bring the Germans out into the open. Fortunately, it so happened that political considerations, too, called for a quick move to capture Rome as soon as possible.

Anzio was the result and in effect it did comply with the main aim in Italy, namely to tie down more German divisions. It succeeded in this purpose to a greater extent than its planners visualized.

The commander of the VI Corps received orders on 12 January 1944, "to secure his beachhead (at Anzio) and then advance to the Alban Hills." Surprise was achieved and the landings were only very lightly opposed by two German battalions. The VI Corps commander concentrated on the first part of his task, namely the securing of the beachhead with the two infantry divisions at his disposal. He was possibly influenced in this decision by experience at Salerno. It is a controversial matter whether he would have achieved more toward the furthering of the general aim in Italy if he had pushed on to the Alban Hills in the first few days. It is quite possible he would have contributed less, as events turned out. His path to the Alban Hills would have been blocked by the 4th Parachute Division and the formidable Hermann Göring Panzer Division (then south of Rome, and which had been given the task of defending the roads leading to Colli Laziali). It is worth noting, too, that the headquarters of the I Parachute

Corps was re-established south of Rome on 220700 January. This would lead one to believe that the route to the Alban Hills was not as open as some writers seem to think.

What is more important from our point of view is the concentration of force that was built up by the Germans *from centers outside Italy.* Two divisions and many lesser units started at once from France, Yugoslavia, and Germany. Three divisions of the German Fourteenth Army also left for the Rome area on 22-23 January. Here you had German troops being drawn away from what was shortly to become the decisive front in France. You had the Germans, mostly for political reasons and partly because of what General Eisenhower refers to as the "conqueror complex" of Hitler himself, being diverted as it were from their main war aim, namely the holding of vital areas necessary for the defense of Germany proper.

The first and most important part of the general aim of the Italian campaign had been achieved, but "a basic principle for the conduct of a supporting or auxiliary operation is that it be carried out as cheaply as possible. Since its purpose is to induce dispersion of hostile power, *the operation, to be successful, must force a heavier relative drain upon enemy resources than upon our own.*"

The build-up of German forces continued until the commander of the Fourteenth Army decided to launch a series of attacks on the beachhead. From 3 to 12 February and again from 16 to 20 February, the Fourteenth Army launched a series of attacks on the perimeter at Anzio.

Of the defense at Anzio, Field Marshal Kesselring said, "Anzio was the enemy's epic of bravery, just as ruined Cassino was ours."

During the 4-month battle at Anzio, the Germans suffered 40,000 casualties, of which 5,000 were killed. The combat casualties of the United States VI Corps at Anzio through 22 May numbered about 30,000, of which 4,400 were killed.

From these facts, it will be seen that the casualties on both sides were high, with the advantage slightly in favor of the allies. I do not believe that this was true in any of the other battles fought in Italy up to that time.

The allies had been constantly on the attack under unfavorable conditions. Salerno, the crossing of the Volturno, the Winter Line, and last, but by no means least, the attempts to cross the Rapido, and Cassino itself were all very costly operations from the allied point of view. Anzio, where the Germans were induced to go into the attack would come closest to meeting General Eisenhower's requirement for a "supporting or auxiliary operation." That it fell short of it at all was mainly due to insufficient forces being employed at the outset.

As Field Marshal Kesselring said, "The landing force was initially weak, only a division or so of infantry and without armor. It was a half measure as an offensive, that was your basic error."

The general allied aim of the Italian campaign was maintained well at Anzio. The lessons to be learned from this are mainly from the German point of view. Hitler, by deciding to reinforce his Italian armies, was diverted from his main aim. It was scarcely ever envisaged that the drive up Italy would culminate in an all-out drive on Germany itself. The strategic bomber base at Foggia had been secured and a shortening of the German lines of communication through Italy would have resulted in economy of force and in the possibility of a stronger concentration of effort against the invasion forces at Normandy.

Surprise

Next to *maintenance of the aim, surprise* is possibly the most important principle in warfare. In other words, it is imperative that you adhere to your aim rigidly at all

times and that while so doing you deceive the enemy as to what methods you intend to adopt in order to achieve that aim.

It has already been pointed out that surprise was complete concerning the time and place of the landing at Anzio. That a landing somewhere north of the Gulf of Gaeta was impending was, however, obvious to the Germans, as their elaborate scheme for the concentration of their forces testifies. The allied plans, therefore, were designed to mislead the enemy as to the place of landing. An elaborate cover plan was put into operation.

A feigned attack had been designed against Leghorn. An assembly of small craft and a radio station on Corsica had advertised the fictitious intention. In addition, a naval bombardment of Civitavecchia caused further confusion among German intelligence staffs. A concentration of naval craft also bombarded coastal batteries near Terracina on 20 January, and again on 22 January. All this time the X Corps in front of the Gustav Line had been staging a fierce onslaught, thus diverting attention and troops from the beachhead area.

The result was that Anzio was denuded of troops on the night of 22 January. The assaulting troops got ashore almost without being fired upon. So complete, in fact, was this surprise that it is almost certain that the attacker himself was surprised at the ease of the landing, and apparently had no plan drawn up to meet the situation. We have here two valuable lessons: the benefits of achieving surprise, and the necessity for providing for such an eventuality with a plan for exploitation.

What shape could this plan have taken? Some writers, mostly British, think that the VI Corps commander should have pushed on to his main objective, Colli Laziali, at this early stage. Others think that the vital communication centers of Campoleone and Cisterna would have been sufficiently ambitious for the VI Corps. Let us, at this juncture, examine briefly the more ambitious project.

Colli Laziali was some 20 miles inland from Anzio. To hold this hill feature against any determined attack would require at least three divisions. To secure the base and lines of communication would call for another two divisions. This did not provide for any reserve, which is a vital necessity. The VI Corps commander at this stage had at his disposal less than a third of the forces required for such a venture. The most he could have succeeded in pushing forward was a small diversionary force of nuisance value only.

What he could be blamed for was not securing the communication centers mentioned. Even if these towns could have been held for only a short period, it is safe to say that they would have been a thorn in the side of Kesselring in his great drive to concentrate a counterattack force, and might have induced him to withdraw more troops from the Gustav Line to clear the supply route to that front. In turn this might have provided the opportunity to the X Corps to break through and link up with the VI Corps at Anzio.

Concentration of Force

As soon as the time and place of the allied landing at Anzio were established, the Germans set in motion one of the best examples of the massing of forces which the whole campaign provides. The prearranged plan entailed the working out of a comprehensive alarm system for all of Italy. In it was set out, for all possible landings that could have been attempted by the allies, the organizations to send troops, their composition and the routes they were to use. Starting points, refueling points, and destination were all included. So thorough was the planning that despite the difficulties of winter travel on the roads in the Apennines, and despite interdiction bombing, nearly all units arrived according to schedule.

This exemplifies the importance of thorough prior planning for any operation involving the movement of troops in battle. On D-day at Anzio the Germans had two battalions to counter the invasion forces. By D plus 2 the Germans had 40,000 men concentrated around Anzio and by D plus 7 this figure had been increased to more than 70,000. This was truly a remarkable feat when one considers the areas from which they were drawn, and the disruption of communications caused by strategic bombing. It was not the size of the force massed that illustrates the principle of concentration; rather, it was the speed with which the operation was effected and the thorough planning which contributed to its success. If, a week later, the same thoroughness had been put into the attack on the beachhead itself, it is quite possible that sufficient force would have been concentrated at the vital sectors to ensure a break-through to the beaches and Anzio.

Tactical Lessons

1. When the VI Corps went into the defensive for the first time in Italy at Anzio, it was quite obvious that the ordinary infantryman had not received sufficient training in minor field engineering. There was—as seems to be normal in all battles—a shortage of engineer personnel. Those who were available were scarcely adequate to supervise main defense works.

What is called for then is a vigorous campaign to get the infantryman engineer-minded; to get him interested in taking those measures necessary for his own safety which he will take willingly enough when under fire—*provided he knows how to take them!* Officers charged with the training of troops should ensure that their men are versed in the digging of slit trenches and weapon pits, the erection of wire obstacles, the laying and lifting of mines, and the strengthening of existing cover from fire.

2. The stone-walled Italian farmhouse was found to be a good hub around which to build field defenses to form a strong point. Dumps of food, sufficient to last 5 days, and ammunition were built up in these strong points to provide against the possibilities of isolation. Many of these strong points actually held out long after the surrounding area was overrun.

Troops should be taught to utilize these readymade defenses and storage places. A word of warning might not be amiss, however. Houses are obvious targets for artillery fire, and their surrounding trees and groves attract the eye of the artillery observer. If your defense perimeter includes one of these buildings, do not hesitate to use it to the best advantage. It is comforting to remember that stone walls are proof against all but a direct hit from heavier artillery.

3. Mine fields should be carefully marked and recorded. Failure to do this may result in far more casualties to your own troops than to the enemy. In Italy it was often necessary to lay mine fields at night under enemy fire. After much trial and error in this respect, it was finally decided that the mine field should first of all be carefully marked and recorded. It was only when these two steps had been taken that the mines themselves were actually laid.

4. To improve the west branch of the Mussolini Canal as an obstacle, the water level was raised by the construction of earth dams, and barbed wire was laid below the surface. The level of many rivers could be easily raised in such manner. The placing of barbed wire below the surface could have a very disconcerting effect on troops making a night attack across a river which had not been reconnoitered adequately.

5. One of the main reasons for the failure of the German offensives at Anzio, and second only to the high morale and stubborn resistance of the British and

American troops, was the devastating effect of allied artillery fire. For every shell the Germans fired into the beachhead area, the allies sent back 20 to 30. Much of this allied fire was directed against likely German assembly areas.

Obvious assembly areas should be avoided as far as possible in the attack. Conversely your defensive fire tasks should include all likely assembly areas.

Conclusions

The lessons to be learned from the action at Anzio were numerous and varied. They ranged from the broad strategic sphere of the war aim of the allied powers to the narrower, but perhaps just as important, question of the proper procedure for the laying of mine fields.

With regard to the result of the venture, it may be safely left to General Eisenhower, who assisted at its planning, but viewed the operation from a sobering distance, to sum it up:

> In the final outcome the Anzio operation paid off handsomely, but in its initial stages it developed exactly as my headquarters thought it would—before real results were achieved the Anzio force had to be built up to more than six divisions and had to fight under adverse conditions for some 4 months. On the other hand, the move undoubtedly convinced Hitler that we intended to push the Italian campaign as a major operation and he reinforced his armies there with eight divisions.

How much easier this made General Eisenhower's own task of landing in Normandy and pushing through France into Germany can be readily imagined.

The German Armed Forces and Democracy

Translated and digested by the MILITARY REVIEW from an article by Erich Dethleffsen (major general in the former German Army) in "Wehrkunde" (Western Germany) March 1953.

MOST of the people of Western Germany are convinced that within the foreseeable future German formations will be joining the forces of the West in a defense against communism. In view of this, there is a great deal of anxiety and discussion concerning the structure of the future forces. Some fear that the military forces will follow the lines of the former regime; others fear that excessive democratization will reduce their military value.

Most of the fears can be attributed to (1) the memory of the Weimar Republic and the old *Reichswehr*, (2) the memory of the Nazi-dominated *Wehrmacht* and the resultant perversion of the military, (3) the widespread disillusionment of the people, who had expected more from the former armed forces, (4) the memory of the retrograde development of human relations within the armed forces.

It must also be realized that there exists—both in the minds of former soldiers as well as in the mind of the nation as a whole—"restorational" tendencies which have found expression in the following denunciatory statements:

1. "We could have won the war if Hitler had not . . ."
2. "We could have won the war if the generals had really wanted to."
3. "German military morale was untouched and unshaken when the war ended. It was broken only by the defamation of the postwar period and the *re-education*."

One overlooks the fact, and forgets, that the worm was already gnawing at the inner structure of the old *Wehrmacht*. The old concepts of moral responsibility, which under certain circumstances must have precedence over obedience, yielded to transitory pressures. In the place of free-

dom of action and independent initiative in the individual, an overcentralization made its appearance. The commander was no longer fully conscious of his political responsibility toward his nation. This, however, is not the place for fixing the blame. This development was mostly the result of the change in the social position of the officer and the influence of materialism. It should also be emphasized that the development was not typical of the military alone, but embraced all persons of our nation who were called upon to lead. That does not, however, alter the fact that it existed, and that from it we must draw our conclusions.

We Must Build Anew

There is an increasing number of former soldiers who are ready to acknowledge the errors that were committed, to learn from them, and to recognize that not everything in the old *Wehrmacht* was good. They also acknowledge the fact that we must build not *again*, but *anew;* that this building must be not on the old, but on a new, foundation. However, in the rebuilding, all the good stones from the old house must be used again; that is, those which have proved their worth and have been retained.

What Is Required?

However, even among those who know that we must build anew, it is frequently not recognized just what is required. They attack the problem from a false angle. They believe that democracy can be established within the armed forces by reducing the acts indicative of respect.

If one confines himself to outward matters of this type (I might say, to concessions to the *vox populi*), he might conceivably make military service more attractive to our young men, but he will not contribute anything to the spiritual foundation of the armed forces. If the relaxing of discipline is overdone, there is no question but that we will risk lowering the combat value of our forces. Any concept that a combination democratic-military spirit can guarantee military victories just as certainly as an army whose structure is based on obedience is false. In other words, an army is not democratic by virtue of a democratic organization, but only when:

1. Its officer corps stands firmly on the democratic foundation and is ready to fight for it.
2. Human virtues—freedom and dignity of the individual soldier—are protected.
3. The armed forces are not suspended in a vacuum, but draw their strength and morale from the fact that they consider themselves to be that part of the nation which is serving with arms.

Conditions Have Changed

We must bear in mind that the conditions which determined the inner structure of the old *Wehrmacht* no longer exist. The inner impelling forces which formerly persuaded our youth to become soldiers no longer exist. The ties which bound youth to the state have been destroyed. The youth of today are dispassionate, open minded only to rational considerations. The youth of today see, as a result of the sacrificial spirit of their fathers and brothers, two lost wars and two periods of inflation. The youth of today lack the ability and the readiness to serve the state. They will come to the training centers embittered and resigned, with only this one question on their lips: "Why?" If the officer is unable to answer this question convincingly, the armed forces will lack the strength that comes from conviction.

Capable Leaders Required

It is necessary, therefore, to prepare the officer so that he will be able to present to his soldiers the meaning and purpose of their service, and in such a manner that the soldier will know what is expected of him and why it is expected.

This will be possible only when the officer himself possesses the ability to analyze the task confronting the soldier, in the light of recent history and the realities of the present.

This task consists of taking an active part in the development of the nation and the individual citizen, and, at the same time, protecting the freedom and dignity of the individual. Only when the individual understands his responsibilities to a free nation can the proper spiritual foundation be provided for our military forces.

It will be the responsibility of the future military leader to direct the soldiers' attention to the new phenomena and developments of human society. In addition to tactical and technical knowledge, the future officer must possess the qualities of a leader and a sense of political responsibility. These latter qualities must be given first consideration during the years which are decisive for the future structure of the armed forces.

Possible Dangers

Three possible dangers must now be considered:

1. If there is a failure to orient the soldier as to his responsibilities as a citizen of the state, then there might be a false evaluation of military matters. This, in turn, could lead to militarism.

2. The training of the soldier (both military and civic training) will be placed largely in the hands of the military leader. This could lead to an overestimation of the position of the soldier within the social community and could extend his influence beyond the bounds of his mission.

3. If the integration of Europe does not keep pace with the growth of the German military power, there exists the danger that the desire for national autonomy and independence—in the sense of a "third power" between the East and the West—may be nourished among the soldiers themselves.

The more thorough the political and civic training of the future soldier, the more the dangers listed above will lose their meaning. Therefore, it is of vital importance that:

1. The selection of future officers be made with care, taking into account the extent of their political training.

2. In the creation of the first cadres, political and civic training should be provided as the main branch of instruction.

Three Missions

The training of the future soldier must embrace three important missions or objectives: the soldier as a *man*, the soldier as a *citizen*, and the soldier as a *fighter*. Because these three missions overlap it may be well to summarize each of them briefly:

1. The education of the soldier as a man must consider the individual (regardless of his grade) simply as a man; must discuss civic accomplishments and evaluate them; must avoid all conceit resulting from rank; must listen to the man; must guard him against encroachments of his rights; must provide equal disciplinary punishment for all soldiers; and must cause the man to grasp the true meaning of community, subordination, and responsibility.

2. The education of the soldier as a citizen must provide a complete understanding of the place of military service within the over-all plan of things, and not let it become an aim in itself.

3. The education of the soldier as a fighter must stress the concept of "combat training" and reduce or eliminate all unnecessary drill-field training. At the same time, criticism must not be made against the old training methods. They were certainly the correct methods of their day. They were based on the idea that a large number of individuals were to be forced to act collectively, while the prob-

lem today is to lead the man back from collective to individual action. The change in man, in his environment, in the structure of society, and in the political situation compel us to adopt a new course.

It will be chiefly a problem of awakening and furthering those qualities of Western man which make him superior to the man of the East. These are self-confidence, willingness to assume responsibility, and initiative.

A Change in Attitude

There must, of course, be insistence on the binding power of the command and on obedience in general. Personal conviction, plus confidence in one's officers, will be the foundation of obedience. It seems proper (in contrast with a concept prevalent in the past) to tell the soldier the reasons for the commands during the training period.

This will strengthen the feeling of confidence in the man and of the correctness of the command given. The man, in reply to a respectful inquiry as to why a certain thing is commanded, should never be told: "That is none of your affairs. For you a command is a command."

Training activities will make more demands on the future officer than was formerly the case. We must count on constant difficulties and disillusionments. However, these must not turn us from our purpose.

The important thing to remember is that we will succeed in our task only when the armed forces do not lead an isolated existence, when the whole nation stands behind them, and when both the nation and the soldier feel themselves to be one.

Naval Operations in Korean Waters

Digested by the MILITARY REVIEW from an article by Rear Admiral A. K. Scott-Moncrieff in the "Journal of the Royal United Service Institution" (Great Britain) May 1953.

I WAS in command of the Commonwealth Navy in Korea from April 1951 to September 1952, during which time our command of the sea was never contested by the enemy. However, much hard work and constant patrolling was done by the navies of the United Nations in order to maintain command of the sea.

Organization

I should like first to sketch very roughly the general command situation in the United Nations naval setup. The naval forces were under the command of Commander, Naval Forces, Far East, an American admiral, who was based in Tokyo alongside the Supreme Commander, Far East. This was General Matthew Ridgway when I first got there and latterly General Mark Clark. At the beginning of my tour, Admiral Turner Joy was commander in Tokyo but he, as you remember, was taken away to be the senior delegate in the truce talks and was relieved by Admiral Briscoe.

Under Commander, Naval Forces, Far East, in Tokyo, was formed a United Nations blockade and escort force, which was part of the United States Seventh Fleet. This task force was commanded by an American admiral to whom I acted as second-in-command, and as commander of a task group.

My own command setup was as follows: I had a rear headquarters in Sasebo, Japan, in a makeshift headquarters ship. This was a Yangtze river steamer, chartered by the Royal Navy and named the *Ladybird*. There were also extra offices ashore. In the same harbor the Commander of the United Nations Blockade and Escort Force, my immediate superior,

had his headquarters in a destroyer depot ship. Thus we were in close contact and our staffs were able to work close together.

In order to exercise general supervision of the coast in my war area, it was my habit to visit this area regularly, proceeding to and from it usually in the small ships of my command. I left my chief of staff in nominal control with the majority of my staff and proceeded to sea with the minimum of staff officers, but keeping, of course, in complete touch by radio.

Ships Available

Under my command I had the whole of the British Far Eastern Fleet, consisting of two carriers, one operational and one for the transport and maintenance of the aircraft. You will realize that we were operating more than 1,500 miles from our main base and airfield. In addition I had two cruisers, eight destroyers, eight frigates, and a fleet train consisting of supply ships, ammunition ships, store ships, and fleet oilers manned by the Royal Fleet Auxiliary Service.

Moreover, the Dominion navies supplied three destroyers from Canada, two from Australia, and for part of the time a carrier and destroyer, and two frigates from New Zealand. I had also under my operational control one American carrier; several fleet destroyers; some landing ships, rocket; LSTs (landing ships, tank) and minesweepers; a Dutch destroyer; and frigates, gunboats, minesweepers, and MTBs (motor torpedo boats) from the South Korean Navy.

Blockade

A blockade had been declared in the early days of the conflict off the coast of Korea, limited within certain parallels of longitude, so that it only affected the waters immediately surrounding the Korean coasts. There was thus no restriction to ships passing round the Shantung Peninsula on their lawful occasions to Port Arthur, Tientsin, and so on. However, our blockade did prevent any supplies from arriving in North Korea by sea.

From the opening days of the conflict, the command of the sea has rested completely in the hands of the United Nations, and this was fully exploited at Inchon in 1950 and, of course, in the evacuation from Hungnam. It subsequently enabled us to control and make use of many islands off enemy coasts well behind the front line.

Areas of Responsibility

As a general rule, responsibility for the blockade was so organized that the United States Navy looked after the east coast of Korea and we looked after the west coast. This rule was naturally elastic, and I have operated off the east coast as well. We always supplied one destroyer or frigate to the east coast to compensate in some measure for the great help given to my coast by the American ships under my operational control.

There is a great difference between the two coasts of Korea. On the east coast there is no real rise and fall of tide, no tidal stream, practically no islands, and very little shoal water. On the west coast, on the other hand, there is a rise and fall of more than 30 feet, myriads of small islands with shoal water, and a tidal stream running up to 8 knots in places. It is really full of very unpleasant waters.

These characteristics to a large extent dictated our operations. On the east coast, the naval forces were able to give direct support to the army. In fact, the 16-inch guns of the American battleships were used for the major part of my tour in direct support of the army in the front line—and a magnificent weapon they proved to be!

On the west coast, naval support was only possible at the beginning of 1951,

when our 38th Brigade, before the formation of the Commonwealth Division, was holding the bottom half of Kimpo Peninsula. Then we were able to get some cruisers and destroyers up to Inchon and interlink them with the brigade artillery, but later on, when the front line advanced to its present position, it was not possible to get into close touch with the army forces.

Duties of Ships

Apart from the normal patrol work to prevent the enemy from using the sea in any way, our operations can be briefly described. The main striking forces of the fleet were the aircraft from the carriers, and on the west coast our job was to interdict the main lines of communication within certain areas. The American task force, working off the east coast, looked after the other lines of communication in conjunction with the American Air Force. Our aircraft also had to protect our ships from air attack, to spot for our naval guns, to bomb and strafe enemy shore batteries, and generally to roam round the enemy countryside doing what damage they could to communications and troops. In addition, they worked with the Commonwealth Division in the front line whenever possible.

You will realize that that was quite a job for the 30 or so aircraft in our carrier. An average day's sortie was about 80, with a wonderful peak of 123 by the aircraft carrier *Ocean* last summer. The aircraft carrier had a very hard day. In the summer, the predawn flight would go off at about 0430, and they would be flying until 2100, which meant that in addition to the pilots everyone—aircraft handlers, people bombing up the aircraft, ammunition, supply, engineers, everybody—had to work flat out. A tour of 5 months was about the maximum a carrier could be expected to do. As a general rule, they do a 10-day patrol with 8 days in harbor.

The cruisers, one at a time, acted as the senior officer of the coast, apart from the aircraft carrier work. They administered the smaller ships and the islands under our command, which gave them a full job of work. The ship was constantly moving from unit to unit up and down the coast, bombarding here and smoothing the ruffled feelings of some guerrilla commander there, refueling smaller ships, arranging stores and supplies for the islands, and generally looking after the coast. The destroyers, as usual, did a bit of everything, and by virtue of their high speed and good armament were always being directed to troubled areas in a hurry. Their main function was the antisubmarine and antiaircraft protection of the carrier. Although we were never bothered by submarines in my time, we took no chances. They also bombarded and protected our islands and did many a run at high speed up to the islands in the mouth of the Yalu River as well as normal patrolling. At one period our destroyers were averaging more than 7,000 miles a month, which put a great strain on their maintenance.

The Han River

The frigates bombarded and escorted as was necessary, and they also had their share of looking after those islands in the north; that is, up by the entrance to the Yalu River. At one period, it became necessary to penetrate the Han River. This estuary was the closest we could come to our armies in the north end of the Kimpo Peninsula. It was a fearsome place, something like the upper reaches of the Middle Yangtze. There were no modern charts and no local pilots. We knew the sandbanks had shifted, for they always shift with the seasons. The frigates were given the job of finding their way up as high as possible and patrolling the estuary and generally causing alarm and despondency on the enemy's doorstep.

After much unpleasantness, a way was

found. Every channel had to be surveyed by hand lead lines from small boats and then buoyed before the ships could get up. I take off my hat to the captains, for their responsibility was extremely unpleasant. There were places where the ships had to pass a few yards off rocks in a high running stream in which they had to go full speed in order to retain control of the ship. Some of the channels were right up against the enemy coast, within 300 yards, and the enemy did not take long to bring his guns to bear. Duels were sometimes waged at 3,000 yards with army antitank guns, which can be very effective against a thin-sided frigate. However, the six 4-inch guns of a frigate can be very unpleasant at point-blank range too. In all, we patrolled this estuary for 4 months without serious damage and only a few casualties. I know we inflicted more than we received.

We had also, of course, a few Korean gunboats to help protect the islands in the estuary. Our presence there protected the islands, which were manned not by our army but by guerrillas, from invasion from the enemy-held coast. We also helped the guerrillas to invade the enemy coast and generally upset enemy movements. I sent a destroyer up there at one time, but as she dragged at 6 knots with both anchors down, I took her away. In the early stages we tried using American frogmen to find the channels, but the water was so dirty that we could not use them to advantage.

Island Protection

Apart from the ordinary patrol work necessary to enforce a blockade, one of the major tasks for which we were responsible was the protection of certain islands off the west coast. Some of them lay off the enemy's coast line, and the United Nations command decided to hold them. This necessitated garrisoning the islands and protecting them by sea and air. In some cases, the enemy mainland was only a mile away, and many shore batteries had been mounted, covering the islands and their approaches. The protection and defense of these islands was a responsibility of the naval forces. I was very grateful for the United States marine colonel who was given to me to be in general charge of the island garrisons and their shore defenses. Each island had its own marine garrison commander to ensure protection against an enemy invasion.

The main group, the Choda group, required: landing ships, rocket; destroyers; frigates; LSTs; gunboats; and minesweepers. This group is just off the entrance to Chinnampo, and well within air striking distance of the enemy. It is only about 5 minutes from the enemy airfields above the Yalu.

The plan was to have a naval captain in a destroyer or frigate in charge of each area which was, of course, regularly visited by the cruiser, and it was not pleasant work. The waters were honeycombed with rocks and sandbanks, and the tidal stream could run up to 5 knots in places, particularly between Sokto Island and the mainland. Sokto was under fire by the enemy batteries on several occasions. The enemy batteries could also cover the approaches and waters round Sokto and east of Choda. Moreover, there was the constant possibility of air attack in confined waters. Many ships were hit by enemy gunfire but damage was slight.

There were several of these areas and each one was under a senior officer.

On the east coast we had an island up in the north and another farther south off Kojo, south of Wonsan. These were under American command.

I was very grateful to the Americans for giving the commander of these islands his own helicopter so that he could move round as he liked—and magnificent use he made of it. Certain of the islands also had their own helicopters which made

communication between ships and islands much easier, particularly in the winter when there was ice on the water, or in rough weather.

The enemy batteries were mounted all along the coast including Amgak Peninsula for the Choda area and in many places for the Haeju area. Although in this area they could not reach our main island, our patrols could be taken under fire. In addition, there were various small islands which were sometimes under command of our guerrilla troops and sometimes of the enemy troops. You never knew when one was going to be raided or not, so our ships had to keep a watching brief all round the islands. The motor torpedo boats of the South Korean Navy were used for these small islands, and they did several raids up and down the coast and all round the islands. They did a very good job of work, considering that they are a very new navy.

Combined Air and Gun Strikes

On occasions it was necessary to carry out a combined air and gun strike against selected targets, and these were truly United Nations affairs. I remember one I was ordered to carry out off Kojo, south of Wonsan, in which I had an American battleship with two destroyers, the *Belfast*, and two Commonwealth destroyers as bombarding ships; an Australian carrier screened by Commonwealth, Dutch, and American destroyers; American and South Korean army spotters; and, in addition, a Colombian frigate, a South Korean frigate, and American minesweepers were in the vicinity. The aircraft spotted for the guns and bombed and strafed according to a co-ordinated program. On this particular occasion we had more satisfaction than usual, as we caught many enemy troops without ground cover in the area.

As regards minesweeping, in the early days of the conflict the enemy had a large supply of mines at his disposal and the coastal waters had been heavily mined. Most of the mine fields have now been swept, but a constant watch has to be kept to prevent the enemy from mining by junks at night and other methods, practices at which he is becoming pretty good. The United States Navy has done a wonderful job of minesweeping in Korean waters, and a very unpleasant one it has proved to be, because of additional danger to the minesweepers from gunfire. Most of the waters to be swept are in range of shore batteries, and these little minesweepers have been under fire on numerous occasions. They have suffered considerable casualties, but they have never been daunted, and they have earned our unqualified admiration and respect. They worked with us on many occasions and their technique was of a very fine order.

Bombardment

Most of the work in my time necessitated constant gun bombardment of shore batteries, railways, tunnels, lines of communication, and so on. The large majority of these batteries are sited in cliff faces with the guns in tunnels. They are run out to be fired and then retracted very often behind an iron shutter. Unless you get a direct hit, you do no good. They are very cleverly camouflaged and very difficult to see, even if you know exactly where they are. I am afraid that vast quantities of ammunition were used for very little damage done in the early days; but later a new policy was evolved, and we did not fire without exactly pin-pointing the target. We also used our dive bombers with delayed-action fuzes which caused much damage. Sometimes the ships were under fire and could not find the enemy, this was usually from large mortars sited behind the hills, and we had to leave our naval air cover to deal with them.

Our ships on both sides of the coast have been under fire on many occasions but the damage has been relatively light and the casualties very few. The batteries, as

a general rule, are 75-mm with some 105-mm and 120-mm. Some of the batteries, particularly on the east coast, kept up remarkably accurate fire up to 12,000 yards. On the east coast the main railway is forced by the topography of the country to hug the coast line for a major part of its way. Since there is deep water close up to the coast, these lines are frequently under naval gunfire and several positions are kept under constant watch from the sea. "Train catching" by night has become quite a pastime. These railway lines run through myriads of tunnels, interspaced with open spaces. The enemy has a habit of putting his trains in the tunnels by day and dashing across the open spaces at night. We try to creep in to see or hear them and blow them up and get out before the shore batteries can do much damage to our ships.

Wonsan Harbor

At Wonsan, which the United Nations have kept open for more than 2 years, the harbor is completely in our hands. The American Navy, and sometimes our ships, have bombarded this area for more than 2 years. There are one or two small islands in the harbor which we hold, otherwise all of the surrounding land is held by the enemy, and we hope this constant bombardment of the network of roads and railways in this area has caused disruption to the enemy supplies. However, the fact remains that on both coasts supplies do get through, though slowly, and the enemy has been able, since the truce talks commenced, to build up large army and supply centers behind his lines. The enemy used to keep literally thousands of North Koreans tucked away in the hills and in the tunnels. They came out at night and worked like beavers on the railway lines and putting up bridges which were usually knocked down next morning, but they got stuff through, some of it on their backs.

The minesweepers in the harbors have a very difficult time, because they have to sweep by day under a full barrage from the batteries, but they do it, and they stick to it.

A United States naval task force deals with the east coast and supplies the necessary air component to interdict enemy transport, and a most impressive force it is. I was privileged to visit it on several occasions. If you remember, it was aircraft from this force that did some of the most accurate bombing of the power stations on the Yalu River and farther south. I saw the photographs taken at the time in full confirmation of their claims, and it was a very fine piece of work.

Co-operation

As regards co-operation, there is no doubt that the Korean conflict has been of great value in advancing co-operation between our various navies. There is no incentive like the stress of an actual campaign to help on such matters, and there has been a great advance in communications alone, although more is still required to be done. It was interesting enough merely to listen to the voice radio from the ships on the aircraft carrier screen to realize the difficulties of, say, a Dutch destroyer when English was coming over the air in accents of Cockney, Scotland, Australia, Canada, New Zealand, Yankee, and deep South. It was always a mystery to me how they understood it at all. I rarely did. Yet the maneuvers were executed with a precision and dispatch that would have done credit to our best fleet at any time.

Refueling At Sea

I might mention here that we all refueled at sea, if necessary, from each other with complete ease and confidence and without difficulty, and this also applied to ammunitioning and storing. The American fleet train has to be seen to be believed: it is most efficient and made us green with envy.

The American naval air and our own air worked together irrespective of what ship was bombarding down below, and this included the South Korean guerrillas, which really was something! The American Air Force worked with us many times. Here again active operations hastened co-operation; with different radio frequencies and different systems, it needed a lot of knitting together. However, it worked out and good results were obtained. They always gave us high cover over the ships at 30,000 feet or so, and they produced flare aircraft at night, in case of invasion of our islands, which were very efficient and surprisingly accurate.

The United States Navy

As always, the United States Navy was kindness itself and much help and consideration was given to us by them, and I think we did some good to them too. In the early days they lent us helicopters to work from our carrier, and invaluable work was done in saving our pilots who ditched near the carrier or behind the enemy lines. Some very spectacular rescues of our pilots were made by them behind the enemy lines. We used helicopters regularly for working with the islands, as I have said. In my flagship we were able to land them on the quarterdeck, but if this is not possible, they always have a wire attachment to transfer personnel or small stores without having to land. They are most impressive aircraft, and the United States Navy has practically replaced boats with them.

On one occasion I was lunching with the Commander of the Seventh Fleet off Inchon. Four generals came to lunch from the front line, each in his own helicopter with some of his staff. It was an impressive sight, watching these "elephants" flying round and waiting to come down on the fantail of the United States battleship *Iowa*.

Although there are many "unrealities" in the conduct of the Korean conflict by world war standards, it is possible that such "limited" wars, even to the extent of minor air opposition and non-intervention by submarines, may form a pattern for other "small" wars.

As far as our Commonwealth naval effort has been concerned, a not insignificant contribution has been made and in return much valuable training and experience has been gained by a relatively small number of ships and personnel. Even if such training has been qualified by learning certain bad habits under conditions of calculated risks taken, for example, operating against shore batteries in confined waters without air and antisubmarine protection, and even if our organization has been largely makeshift, born of one improvisation after another, it can still be a useful guide for future minor wars.

Perhaps the most useful lesson learned is that there is no such thing as *a small war*, and once committed, even to such a limited contribution as in this case, a steady drain on resources must be faced, and the demands for support will inevitably tend to increase as the war progresses.

As long as we can come and go on the sea as we need to; as long as we can keep our enemy from doing so when necessary—then can we be secure in our land and at peace with our neighbors.

Admiral William M. Fechteler

BOOKS OF INTEREST TO THE MILITARY READER

THE OBSERVER'S BOOK OF AIRCRAFT. Compiled by William Green and Gerald Pollinger. 280 Pages. Frederick Warne & Company, Ltd., New York. $1.75.

BY CAPT RICHARD H. HANSEN, *Arty*

This compact volume describes 164 of the world's military aircraft of today. This new edition has been prepared at a time of unprecedented activity in the design and construction of military aircraft.

The main body of this book is divided into two distinct sections: (a) pure-jet aircraft, and (b) propeller-driven aircraft, both airscrew-turbine and piston-engine powered.

The pure-jet aircraft are arranged in ascending order of wing span so that ready comparison can be made between aircraft of similar planform. Within this classification, the aircraft are subdivided into the kind of nose intake and engine nacelles.

The propeller-driven aircraft are divided, in ascending order of wing span, in the following manner: single engine, twin engine, four engine, aircraft with more than four engines, aircraft with twin tail-booms, and helicopters.

Each individual aircraft identification contains a picture of the aircraft, the country of origin, the type of aircraft, the power plant, the performance, its weight, its armament, its development, its dimensions, and three silhouettes, showing a front, under, and side view of the aircraft.

The Observer's Book of Aircraft will be of particular interest to the military reader because of its timeliness.

PATTERNS OF PANIC. Joost A. M. Meerloo. 120 Pages. International Universities Press, Inc., New York, $2.00.

BY LT COL EDWARD J. WHITELEY, *MC*

Dr. Meerloo describes panic as that which affects social groups or society as a whole. Many examples of panic are provided from the author's ample personal experiences during World War II in Europe. This book provides an insight into why a soldier, a command, or a civilian populace reacts without plan or reason under stress and fear.

The author, a psychiatrist, served as the Chief of the Psychological Department of the Netherlands Army during World War II. He presents, in a nontechnical manner, a clear concept of why reactions of fear and panic occur as they do, and how our present-day world is threatened by these dangerous reactions. He concludes with a brief chapter on how to overcome panic. He has written so that a lay person can learn to differentiate between various states of panic and to recognize hidden patterns which portend it.

The psychological methods of "cold war" and their tremendous effects are realized upon reading this brief volume. It is recommended reading for military personnel who desire a better understanding of the problems which face the world and the individual today.

BACK DOOR TO WAR: The Roosevelt Foreign Policy, 1933-1941. By Charles Callan Tansill. 690 Pages. Henry Regnery Co., Chicago. $6.50.

RUSSIA AND HER COLONIES. By Walter Kolarz. 235 Pages. Frederick A. Praeger, Inc., New York. $6.00.

BY LT COL FENWICKE W. HOLMES, *USMC*

To consider Russia as a colonial empire so far as her relationship to her post-World War II territorial acquisitions is concerned involves no great leap of the imagination. However, to visualize a colonial relationship, as the author does, as extant with the prewar Soviet borders as well, is a startling consideration for one long accustomed to viewing Russia as a monolithic entity.

Mr. Kolarz draws principally upon Soviet sources—newspapers and other official publications—in documenting his picture of Russia, not as an indivisible entity, but as an accretion of separate geographic, cultural, linguistic, religious, and ethnic entities.

The author describes how, in continuation of Czarist colonial policy, the Russian ethnic group (which predominates within the Communist Party) has consolidated power and control in Eastern Europe and the larger part of Asia.

This process of consolidation (and exploitation) took many forms ranging from propagandizing to the exercise of naked brutality. Although the Communist Party seeks to blur the lines of demarkation between the diverse peoples of the Soviet Empire, the unresolved national aspirations of these "colonials" are described in this book as a source of undiminishing concern to the Russian rulers.

One has only to recall the failure of the Germans to exploit the national aspirations of the Ukranians in World War II to recognize that this book contains much fruitful study for the cold war strategist.

For the reader who would seek to discover the weaknesses rather than the strength of the Russians, this book has much to offer.

WHY WATERLOO? By A. P. Herbert. 352 Pages. Doubleday & Co., New York. $4.00.

BY COL GEORGE C. REINHARDT, *CE*

Perhaps the relatively low estate of history in twentieth century literature may be, in part, charged to historians, despite their devotion. Accurate research into past events, inevitably clouded by a fog of controversy in proportion to their importance, is difficult enough. Translating arduously compiled data into a live, readable account which still adheres strictly to unbiased fact is worse; hence, "historical" novels, unreadable histories.

Although a prolific and recognized novelist, Mr. Herbert has plunged into history with a tremendous splash. Had he selected other than a long past by way of international affairs the resulting ripples might have become a tidal wave.

Why Waterloo? could be a successful novel. It has romance, conflict, drama—even tragedy. In keeping with modern trends, psychology is by no means neglected. Yet the book is labeled "history." It is documented, albeit, in unusual format. "Notes" are relegated to the end—and are themselves remarkably readable. Sources are subtly injected into the text—without any *ibid* or *supra*—so skillfully, the reader absorbs them without a jolt.

Unless Mr. Herbert is perpetrating a super hoax, this record (for so I accept it) of Napoleon's brief reign as Emperor of Elba reveals long concealed facts of the "ogre's" character and career. Had England, with its prevading devotion to fair play, seen the fallen idol as Mr. Herbert convincingly portrays him, history might have been quite different—both from the truth per A. P. Herbert and the impressions most of us have gleaned from historians contenting themselves with the "big picture."

Why Waterloo? is a question fascinatingly answered more than a century too late.

THREE BATTLES: ARNAVILLE, ALTUZZO, AND SCHMIDT. By Charles B. MacDonald and Sidney T. Mathews. 443 Pages. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. $4.00.

BY LT COL RALPH S. NESTOR, *Arty*

Devoted to the exploits of small units in battle, this fourteenth volume in the series UNITED STATES ARMY IN WORLD WAR II is unique in that it focuses on the small units and individual soldiers that fought in the front lines. This theme is best expressed by Dr. Mathews, author of "Break-Through at Monte Altuzzo," when he writes, "When a prize fighter strikes a blow against his opponent, his fist alone makes contact. So it is with the main effort of a modern military force: a fraction of its bulk acts as the fist and delivers the punch in the name of the entire army."

In addition to "Break-Through at Monte Altuzzo," which is an account of how a comparative handful of men from the mighty United States Fifth Army penetrated the formidable German Gothic Line in Italy, this volume covers two other battles. "River Crossing at Arnaville" is the story of a battle that started badly and ended in victory; "Objective: Schmidt" tells of a battle that opened with a surprisingly easy success only to end in disastrous defeat. These two battles have been ably recorded by Charles B. MacDonald who is best known for his earlier book *Company Commander*.

The volume achieves its objectives as stated in the preface: ". . . to achieve a microscopic view of battle . . . by focusing on the battalions, companies, platoons, and squads that fought in the front lines." And ". . . to present actions in which the role of other arms and services can also be presented, providing a . . . picture of the interrelation of small parts on the battlefield in as great a variety of tactical situations as possible."

REPORT FROM FORMOSA. By H. Maclear Bate. 290 Pages. E. P. Dutton & Co., Inc., New York. $3.50.

BY MAJ ROGER E. LAWLESS, *SigC*

Reports should be adaptable to epitomization. Mr. Bate's message from the Chinese Nationalist bastion of Formosa is encouraging and can be stated succinctly in his own words: the island's importance in the struggle against communism is inestimable. It (Formosa) "should be held—and so long as American help is available it should be possible to hold it."

Vis-à-vis this matter of what happens to American aid, it is reassuring to note the author's observation that this help to Chiang Kai-shek is being used wisely and well. It was Mr. Bates himself who once held a contrary opinion. Now he feels that ". . . every dollar that has gone to Formosa in the form of either money or goods has in fact been utilized for the purpose it was intended . . . a credit to the anonymous American and Chinese who put this noble and imaginative scheme into operation with such success in this remote part of the world."

Report From Formosa should be of unique interest to the military reader because of the stake the United States and other democracies have in the island and the political philosophy thereon.

The book has a quaintness reminiscent of Maugham. The author sees good in many things. Drawing on his youth in China and later years as a China correspondent for newspapers in England, his message from the beleaguered island is a hopeful one. However, a strong note of caution runs throughout. *Report From Formosa* will make the Western reader think a bit, maybe even look over his shoulder now and then: communism is dynamic and bears watching.

ASSASSINS AT LARGE. By Hugo Dewar. 203 Pages. The Beacon Press, Boston, Mass. $3.00.

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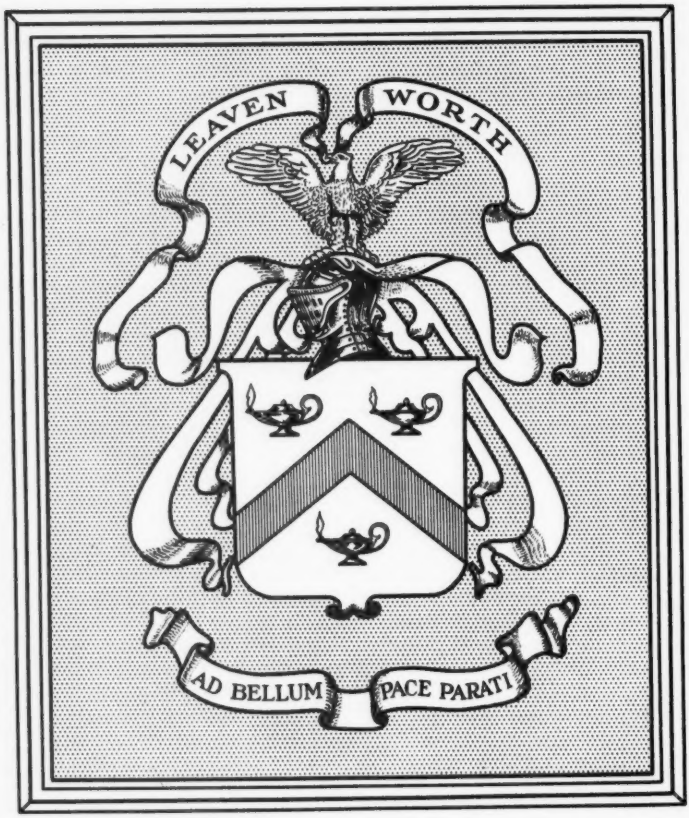

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